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Stories of the Week
Happiest, Healthiest People Anywhere
Enough of This Love Making
Great Partnership
Last Laughs
Arthur Godfrey, Jr.

Stories of the Week

One night in Sydney there was a discussion about why lovely Grace Kelly married that stuffy little prince.

"In my opinion," said witty Australian Ted Clifton of I.P.R., "the Prince of Monaco won her by sending 150 million boxtops to America."

Anzac Day (which corresponds in patriotic significance to our Memorial Day) included the usual parades and ceremonies. At one of the latter the audience joined a choir in singing: "O Valiant Hearts."

Printed programs contained words to this hymn. A line should have read: "Tranquil you lie, your knightly virtue proved." Instead, it came out:

"Your nightly virtue proved."

Happiest, Healthiest People Anywhere

In retrospect, the entire Australian experience was pleasureable, if strenuous. Take the sightseeing. Visually, no other city in the world offers so magnificent a view as Sydney's spectacular harbor seen from overlooking heights.

Melbourne's incomparable parks and flower-gardened homes, Adelaide's seemingly never-ending miles of family beaches plus its metropolitan symmetry, the "Out-Back" overwhelmingness . . . all these are wonders to the eye.

Above and beyond these visual sensations are the Australian people. They're so like the *best* Americans, but *more so,* if you dig our drift.

Essentially, nearly every Australian combines those qualities of character and personality which Americans admire most. As examples these typical Australians pop to mind:

Frank Slessar of Melbourne, best-known of all Australians to the American businessfold. Hearty, handsome, brainy, and sincere, Frank could have become President of almost any U. S. corporation had he elected to remain Stateside after World War II.

Jim Beveridge of Sydney . . . highly imaginative, sensitive to the interplay of human emo-

(Concluded on Page 12, Col. 1)

WAMPLER TELLS BUSINESSMEN

'Face the Facts and Work Like Hell!'

NEW YORK CITY—Eighteen specific things Carrier Corp. is doing to combat the recession were outlined by Cloud Wampler, chairman of Carrier's board, at the Economic Mobilization Conference sponsored by the American Management Association here recently.

It was at this same conference that President Eisenhower delivered a nationally-televised address on the state of the economy in which he affirmed "Achievement and progress cannot be created for our people; they can only be created by our people."

Wampler told the 2,000 business executives attending the conference that "the one best way out of this or any other business set-back is 'Face up to the facts and work like hell!'"

Carrier, he admitted, had to face up to the fact that "in 1956 we overloaded certain of our distributors and dealers.

"Here I mean to sound a note of warning about 'hard selling,'" he said. "Although I believe in hard selling, I do not believe in over selling. Almost always it takes a lot of wisdom to distinguish between the two.

"In this connection, I would like to ask—did the sale of

(Concluded on Page 4, Col. 2)

* * *

What Others Say About the Recession

NEW YORK CITY—"Healthy, hard-hitting selling" is what Borg-Warner Corp. is relying on to counteract the recession, R. S. Ingersoll, president, told the American Management Association conference.

"We believe that people will buy when stimulated by new products, properly and aggressively merchandised," he asserted.

Ingersoll opined that because the public's latent wants for consumer durable goods has been pretty well satisfied since World War II, "we must find ways of becoming more efficient and **give the customer either a comparable product at a lower price or a better product at the**

(Concluded on Page 37, Col. 2)

BEHIND PAGE ONE . . .

RESIDENTIAL Air Conditioning
Adjusting, Balancing Year-Round System 20
What Happens To Heating System When Cooling Is Added? 34
Year-Round Air Conditioning Needs Cooperative Effort (Editorial) 16
COMMERCIAL Air Conditioning
Carson Pirie Scott System Uses 4 Tons of Outside Air Per Min. To Cool Sprawling Zones 18
New Building To Have 'Largest Single Unit' 19
INDUSTRIAL Air Conditioning
Heat Pumps Condition Lab Year-Round Without Need of Supplementary Heat 8
'Outside the Walls' System Cools Plant with No Loss of Space 10
Air from Factory Is Heat Source for Heat Pumps Which Handle Labs, Offices 10
• Commercial Refrigeration Section 26-30

Giordano Discounts Recession, Reports Record 8-Month Shipments for Fedders

NEW YORK CITY—Despite the recession, Fedders-Quigan Corp. shipped a record number of air conditioners during the eight months ended April 30 and has stepped up production to a six-day week, Salvatore Giordano, president and chairman of the board, announced recently.

"This talk of recession seems to be the scapegoat being used to justify bad sales," he observed.

He claimed that Fedders' room air conditioner sales were running about 30% ahead of last year.

Industry-wide inventories, set at 872,000 units as of March 31, were below the 961,000 units in stock at that time last year, he asserted.

Giordano predicted that "within a relatively few years" room air conditioners would sell at a rate double the 1957 figure, or at an annual volume of about 3,000,000 units.

Giordano warned that some producers might be treading a little too carefully. With a break in the weather, he foresaw the

(Concluded on Page 25, Col. 1)

Bulk Milk Tank Installations Triple In 2 Years

WASHINGTON, D. C.—Mushrooming rates of growth in the nation's bulk milk tank installations are revealed by a series of surveys by Dairy Industries Supply Association and National Association of Dairy Equipment Manufacturers, the third of which has just been released.

The studies show that total installations increased from 29,885 on Jan. 1, 1956, to 57,386 on Jan. 1, 1957—a gain of 91.8%—then rose another 59.2% to 91,363, by the beginning of the current year. This represents a tripling in only two years.

(Concluded on Page 37, Col. 1)

Union Carbide Calls Refrigerants 'Ucon'

CINCINNATI — The brand name "Ucon" has been selected by Union Carbide Chemicals Co., Div. of Union Carbide Corp., as the trade-mark under which the company's fluorocarbon refrigerants and propellants will be marketed.

The announcement was made here by Carbide's John R. Hulten, manager — fluorocarbons sales, at the company's suite in the Netherland Hilton hotel. The convention of the Chemical Specialties Manufacturers Association was held here.

Ucon fluorocarbons will be produced at Carbide's Institute, W. Va., plant.

"Construction of a new fluorocarbons unit at the plant is proceding as originally scheduled," it was stated. "The unit is expected to go on stream in the fall of 1958. It will have a de-

(Concluded on Page 37, Col. 4)

M-H Promotion To 'Stimulate' Home Cooling

Industry-Wide Push Cooperates with OEM

MINNEAPOLIS — A new industry-wide sales promotion campaign—aimed at stimulating wider consumer understanding and purchase of residential air conditioning—has been launched by Minneapolis-Honeywell Regulator Co. following completion of its "extremely successful" "Project Warm Hearted House," the company announced.

The new promotion is being carried out in cooperation with the nation's manufacturers of original equipment, it was explained. A very high percentage of participation already is assured, M-H officials said, citing the fact that within two weeks after the campaign was disclosed to 118 manufacturers, 107 had pledged their support.

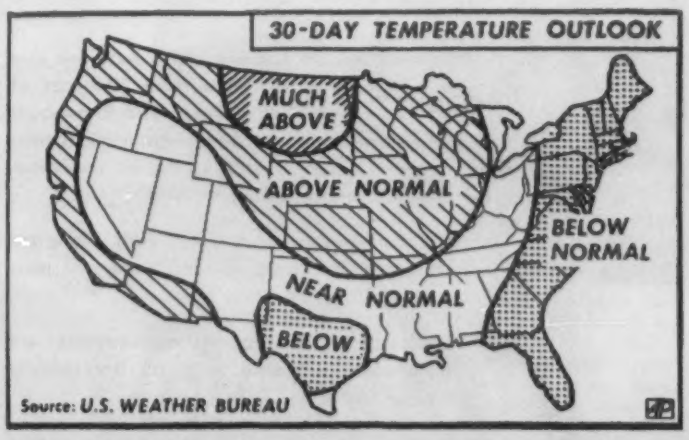
In format, the RAC (Residential Air Conditioning) promotion is similar to that of "Project Warm Hearted House." The campaign will be kicked off at the consumer level by a four-

(Concluded on Page 14, Col. 1)

Sharp To Retire as Hotpoint President

CHICAGO — Hotpoint Co., a division of General Electric Co., announced the retirement of John C. Sharp, president and general manager, effective May 31, 1958.

Sharp has been president and general manager since May 12, 1952, and associated with Hotpoint Co. and its predecessors since July 1, 1929. He will remain with the company for the next several months as a consultant. He has announced no future plans as yet.



WASHINGTON, D. C.—In the U. S. Weather Bureau's 30-day outlook for mid-May to mid-June, above normal temperatures are predicted over the northern half of the area lying between the Great Lakes and the Rockies, as well as along the West Coast.

The outlook calls for temperatures to average slightly below season normals east of the Appalachians and in the extreme southeast.

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Dependable Prescription for Refrigeration & Air Conditioning Equipment

Rx Always Specify READING Copper Tubing

Made by Copper Tube SPECIALISTS

READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

Worthington Ads

Cost Chart Throws 'Brighter Light' on Commercial, Industrial Cooling Jobs

HARRISON, N. J.—"The recent du Pont study on the role of air conditioning in commercial and industrial concerns pointed out the fact that the majority of these concerns felt that they 'could not afford air conditioning.' But at the same time this same majority had no real idea of what it actually would cost to air condition their place of business."

So stated Worthington Corp. in announcing that in an effort to throw a brighter light on the subject of air conditioning costs for commercial and industrial installations, it has scheduled a series of special advertisements in New York, Philadelphia, Atlanta, and New Orleans papers.

"Typical air conditioning costs including product and installation costs have been figured on a square foot basis," the announcement said. "For a prescribed square foot area a range of cost will be shown to cover both simple and complicated installations.

"The dominant feature of these ads is a cost chart which will give the commercial or industrial prospect an immediate idea of what it will cost to cool his store, office, or plant.

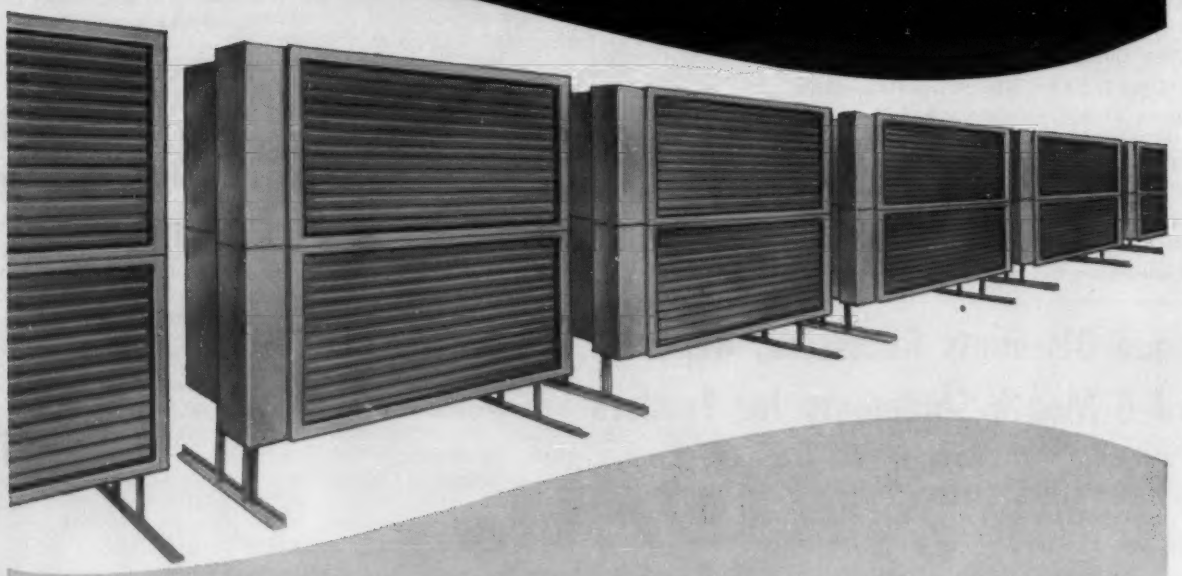
"By giving the prospective buyer this information Worthington feels that three important hurdles will be overcome:

"1. The buyer's feeling that air conditioning costs are sky-high will be tempered.

"2. Presenting a range of costs that can be applied to a building simply by measuring the square foot area will present an immediate approximate cost picture. Then and there, the prospect will know whether he can afford air conditioning or not.

"3. Costly and wasteful specification writing on the part of the dealer will be reduced, as prospect has already been conditioned to cost of air conditioning."

KRAMER
UNICON for UNLIMITED TONNAGE



Kramer Unicon has brought a new era into the industry. With more than 20 years of unique practical experience and know-how in dry condensing, Kramer again offers new avenues of opportunity to the air conditioning and refrigeration industry.

Unicon now has no capacity limit. Standard Unicon systems up to 540 tons are now cataloged for the first time.

Unicons for heat pump applications are now also available with no horsepower limitations.

Kramer engineering and design has proven that the Unicon can move large volumes of air with extreme quietness.

Unicon has long proven by actual experience that it is free from fouling or corrosion and requires practically no maintenance.

The total operating weight per ton for Unicon is very low, resulting in minimum platform and reinforcement requirements.

Unicon space requirements are surprisingly small; a 300 ton system requires only 15' x 14' floor space and is 12' high.

WRITE FOR BULLETIN U-391

KRAMER TRENTON CO. • Trenton 5, N.J.
44 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Revere Cuts Copper Water Tube Price, Ups Wholesale Discount

NEW YORK CITY — Revere Copper & Brass, Inc. has cut its prices on copper water tube again and revised its plumbing and heating wholesale cash discounts upward from ½% to 2%.

The price cut averaged about 9.4% and came on top of a 10% reduction made a few days earlier. The cuts are intended to "bring prices into closer relationship with foreign products," the company said. Foreign copper water tube, it indicated, had been selling as much as 23% under the domestic product.

Copper water tube is used in air conditioning, refrigeration, heating, and plumbing.

The increase in discount also applied to copper drainage tube, brass and copper pipe, and threadless pipe, the company said.

Dancer-Fitzgerald-Sample Named Frigidaire Ad Agency

DAYTON — Frigidaire Div., General Motors Corp., has named Dancer-Fitzgerald-Sample, Inc. to handle its major appliance advertising, it was announced by Herman F. Lehman, Frigidaire general manager and GM vice president.

Included is advertising covering Frigidaire household refrigerators, food freezers, ranges, automatic washers and dryers.

SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

ABOVE: Reportedly the world's largest single installation of horizontal package units creates an optimum climate for the windowless Dallas Home Furnishings Mart, Dallas, Texas. 222 General Electric package units, totaling 1,200 tons, cool or heat 434,000 square feet of sales and display areas in this modern two-story building. Each exhibit area has its own units individually controlled and metered for power and water use.

AT RIGHT: Ceiling-mounted units cool or heat exhibit areas but take no valuable floor space. Grille shown at rear of unit connects with a duct, designed as part of the building to carry fresh air and to conceal piping and wiring for the units. Eight roof-mounted fans deliver fresh air to the duct for distribution to display areas. Another set of fans exhausts air through relief grilles placed along walls of hallways and courtyard areas near the ceiling. For heating, hot water is piped to each unit.

How to get maximum flexibility from a 1,200-ton air conditioning system

Cooling and heating needs satisfied by 222 "Freon"-charged package units at Dallas Home Furnishings Mart

Package units provide an economical, efficient way to get flexibility in an air conditioning system at the Dallas Home Furnishings Mart, Dallas, Texas—reportedly the world's largest single installation of horizontal package units for cooling and heating.

Flexibility was needed at the Mart because 434,000 square feet of floor area is arranged into various sized sales and display areas, each with different cooling requirements. Areas are rented to national manufacturers of home furnishings to show off their lines to buyers from all over the Southwest.

Air conditioning is not needed full time by any of the exhibitors. For one week, twice each year, the Mart is open to show off new lines, and for two days each month it is open for buyers to shop and place orders. At other times most of the space is closed except for a few secretaries or salesmen.

Cooling or heating needs of individual tenants range from high cooling capacity for dissipating heat from a lamp display to a simultaneous need for heating by a tenant near an outer wall.

Careful analysis of these conditions before construction led to installation of a 1,200-ton system of 222 General Electric package units. These space-saving, ceiling-mounted units range in size from 3 to 7½ tons. Mounted at about 30-foot intervals, they assure each showroom of at least one unit. Units consist of a sealed refrigerating system for cooling, a blower plus heating coils connected to an outside source of hot water. Tenants control their own units and pay only for air conditioning they use.

Each General Electric unit was charged with Freon-22* refrigerant, and there has not been a single leak or mechanical failure since the system began operation. To help assure the same trouble-free performance for your air conditioning or refrigerating equipment, be sure to specify "Freon" on every order. *E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, Wilmington 98, Delaware.*

ABOVE: Unit is suspended from the ceiling, electricity and piping are connected, and unit are ready to go. Condensers are cooled by water circulating from a cooling tower serving all 222 units. Each cooling system comes factory-charged with "Freon" for maximum efficiency and safety. Since the system began operation, there has not been a single leak or mechanical failure.

FREON® REFRIGERANTS

**Freon and combinations of Freon- or F- followed by numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.*

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

Betz Names Searls General Sales Mgr.

DANVILLE, Ill. — Blake Thomas, general manager of the Betz Div. of Bohn Aluminum & Brass Corp., announced that Jack Searls has been appointed general sales manager of that division.

Jack Searls

Searls comes to Bohn in this new position with many years of experience in selling to both wholesalers and manufacturers of refrigeration and air conditioning products. Bohn's Betz Div. manufactures heat transfer equipment for commercial refrigeration and air conditioning. He will devote his efforts mainly to strengthening customer relationships.

Wampler Views--

(Concluded from Page 1, Col. 4)

more than 7,000,000 motor cars in 1955 help or did it hurt the American economy?"

Turning to the things that Carrier is doing to fight the recession, Wampler said "one of the most important things . . . is the expansion of its training programs, including great emphasis on management training."

None of Carrier's 18 specific steps are dramatic, Wampler warned. They are:

"1. We are continuing to make very substantial capital expenditures. The total in 1958 will be second only to the record high of 1957.

"2. Basically, our capital expenditures program for 1957 involved the replacement of old and inefficient facilities with fine new buildings and equipment. The same is true of 1958.

"3. Carrier's capital expenditure budget for 1959 is now being formulated. It is our present intention to step this up by including certain projects which were deferred last year when money became so tight.

"4. A major part of Carrier's improvement program has been and will be related to research and development.

"5. Although many of our development people are working on cost reduction, a very special effort is also being made to get new products ready more promptly than called for by original schedules.

"6. Among the possible victims of any business recession is the existing office building that is not air conditioned. Accordingly, Carrier is now hitting this market harder not only in sales effort but also engineering.

"7. It is becoming increasingly apparent that the air conditioning of factories results in greater productivity and many other gains. So—here is another area in which Carrier is stepping up its marketing and engineering programs.

"8. Our engineering, research, and development expenditures in 1958 will be the second largest in the history of the corporation and a very close second at that. But in results, we are positive they will set a new high record because of better planning and greatly improved facilities.

"9. Having in mind the overselling of which we were guilty in 1956, we are determined to do a better forecasting job.

"Toward that end certain of our marketing people will be pulled away from the pressures of today and required to be more objective in sizing up not only this or that market but also the general business climate.

"10. We are holding business training seminars all over the country. The objective is to help our dealers improve their business practices.

"11. We are seeking to stimulate the interest of the end user of our products in advance of the normal selling season. During the past four months Carrier's installing dealers submitted more proposals to prospective buyers than ever before. The results already show.

"12. A large portion of our advertising money is being spent closer to the point of sale.

"13. We are simplifying our product lines, standardizing an increasing number of components, and doing more and more manufacturing as opposed to buying on the outside.

"14. Brainstorming sessions are proving very helpful as we seek to cope with today's problems. I believe that these sessions have caused a great many Carrier people to say to themselves, 'We belong.'

"15. The principal objective of our cost and expense reduction programs was and still is to get back to reasonably satisfactory profit margins.

"16. Every aspect of Carrier's incentive compensation program is being re-examined and new possibilities explored.

"What we hope to do is provide more and more of our employes with an incentive that will result in greater productivity.

"17. Over the years Carrier has sought to encourage its people to take an active working interest in their communities and also in state and national affairs. We now propose to place more emphasis on this even to the extent of urging political action.

"18. There is no question but that the most intense competition prevails throughout the industries of which Carrier is a part. But this condition is more nearly normal than the atmosphere of the ten years following World War II.

"So there can be no 'waiting for things to get better.'"

Bryant Special Ready

Looking over the Bryant Heating and Cooling Special which is entered in the Indianapolis "500" on Memorial Day, are Joe Scopa, the mechanic; Carmel Quinn, Arthur Godfrey singing star; and Phillip Hedbeck, Indianapolis distributor for the Bryant Mfg. Co. The car is being sponsored by Bryant as the focal point in a sales contest for its dealers and their salesmen.

WOLVERINE LEADS THE WAY WITH:

THE LEVEL BEST

Do your manufacturing operations require the high speed handling of copper refrigeration tube—without the danger of tangling or snarling? Does your automatic equipment depend on continuous feeding — without an operator standing by? Are you looking for a way to store a maximum amount of tube — in a minimum amount of floor space? If you answer yes to any or all of the above questions then you'll find that Wolverine refrigeration tube in level wound coils is exactly what you're looking for. In addition to greater all-'round convenience and efficiency, Wolverine level wound coils also assure you of cartoned refrigeration tubing that is protected during shipment—will reach your plant in first class condition. Wolverine commercial refrigeration tube is also available in standard, medium and extra-long bunch-type coils. Next time you order copper or aluminum refrigeration tube specify Wolverine. In addition to the type of coils that meet your most exact requirements, you're also assured of tubing that is clean, dry, and consistent in temper—Tubemanship-produced to give maximum satisfaction. For complete information write for your copy of our new book "Wolverine Serves The Refrigeration Industry."

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URANIUM DIVISION
GOODMAN LUMBER DIVISION
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SALES OFFICES IN PRINCIPAL CITIES
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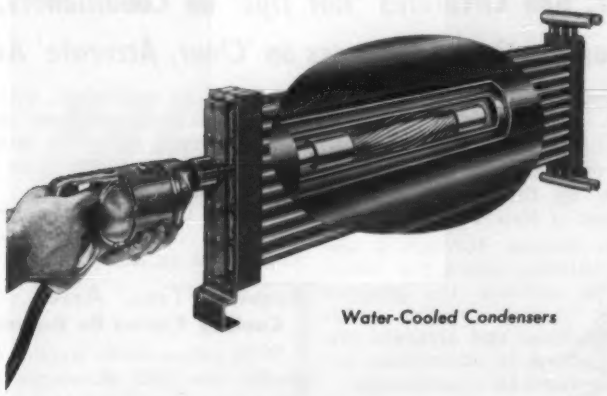


Water-Cooled Condensers

Cooling Towers

Air-Cooled Condensers

Cooling Towers

So Halstead & Mitchell engineers said . . .

"Here's a line of 'high side' products that cost less to buy, less to operate ...less to maintain"

HM ***CLEANABLE, COUNTERFLOW WATER-COOLED CONDENSERS***

H&M Water-Cooled Condensers perform efficiently even in hottest weather or in crowded equipment rooms. Double-tube design and counterflow of refrigerant and water assure maximum heat transfer. Removable headers permit easy water tube cleaning with a simple accessory tool and an ordinary electric drill. Scale and sludge are removed without harmful chemical cleaners. Available in ⅛ through 25 tons, all H&M condensers are U/L approved for Refrigerants 12 or 22.

HM ***COOLING TOWERS WITH THE EXCLUSIVE 20-YEAR GUARANTEE***

Ideally suited for all refrigeration, air conditioning and industrial process water cooling applications. Induced air flow and efficient water distribution cool the circulating water thoroughly, even on very humid days. Pressure creosoting of the wood fill makes possible the industry's only 20-Year Guarantee on the wetted deck surface against failure due to rotting or attack by fungus. The tower casings are specially coated with plastic *after assembly* for complete protection against corrosion. Propeller Fan models are available in 2 through 125 tons; Take-Aparts, in 5 through 100 tons; Blower Fan models, in 5 through 25 tons.

HM ***AIR-COOLED CONDENSERS WITH TURBU-FLO, WIDE-SPACED FINS***

Larger coils and exclusive Turbu-Flo fins provide dependable performance for air-cooled systems. The embossed, streamline fins create better air wash, thus reducing air film resistance and increasing heat transfer by up to 15%. Wide fin spacing keeps coils from clogging with dirt or other air borne particles. Sturdy, lock tight construction won't vibrate or rattle. Design embodies slow speed, deep pitch fans and draw-through draft for quiet, efficient operation. H&M Air-Cooled Condensers are available for Refrigerants 12 or 22, in 3 through 50 tons. Multiple circuiting to suit the individual job is provided.

Ask for all Halstead & Mitchell products at your nearby distributor's or write for descriptive literature. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

HM Halstead & Mitchell

WATER-COOLED CONDENSERS • COOLING TOWERS
AIR-COOLED CONDENSERS • FINNED-SURFACE COILS

Fedders Increases Portable Air Conditioner Series by Adding Three 1-Hp. Units

MASPETH, N. Y. — Fedders-Quigan Corp. has increased its 1958 "Minute Mount" portable air conditioners series to five models by addition of three 1-hp. units.

These are 810 MS-2, a 115-v., 7½-amp model; 810 M-2, a 115-v., 12-amp. unit; and 810 M-3, 230-v. Previously the firm had made known two ½-hp. portables, one for double-hung windows, the other for casements. Weight of each of the new units is about 105 lbs. "Safety-Fast" installation system, introduced on the first portable, will be featured on the three new units.

February Room Unit Sales Rise In D. C. Area

WASHINGTON, D. C.— Metropolitan area sales of most major appliances were down in February from sales a year earlier, the Electric Institute of Washington reported.

Room air conditioners (including 1-hp.), however, showed a rise to 1,888 from the 1,777 sold a year ago. Dehumidifier sales sagged to 69 from 188 of February, 1957.

Welbilt Reports Sales, Earnings Slump In '57

NEW YORK CITY—Welbilt Corp.'s sales and earnings last year showed a decline, the annual report indicated.

Net profit for 1957, after special items of $238,005 (plant relocation), totaled $186,608 compared with $473,593 the preceding year.

Sales dropped to $20,279,150 from $22,547,131 during the previous year.

Alexander P. Hirsch, board chairman, expressed confidence in 1958 sales because of new product improvements in air conditioners.

N. Y. BBB Circulates 'Hot Tips' on Conditioners, Urges Continued Progress on 'Clear, Accurate' Ads

NEW YORK CITY — Some "hot tips" on air conditioners were circulated recently to local distributors and retail advertisers by the Better Business Bureau of New York City.

The bureau, through a special bulletin, urged the industry to continue the progress made during recent years toward clear and accurate representations in advertising and selling room air conditioners.

Hugh R. Jackson, president of the BBB, asked that strict adherence to the industry-accepted advertising and selling standards be continued, noting that "substantial progress" has been observed since the inception of the first local code in this field in 1954.

Four of the standards formulated by the bureau were singled out in the bulletin.

Requires 'Tons,' Area Cooling Claims Be Barred

With reference to cooling capacity, the BBB standards require that "tons" and area cooling claims not be used. A recent recommendation by the Air-Conditioning & Refrigeration Institute calling for advertisers to include the model number of the offered unit and its B.t.u.-per-hour capacity in accordance with ARI Standard 110 when advertising price, or referring to size, capacity, or performance, was strongly endorsed by the bureau.

'Don't Create Idea No Wiring Is Needed'

The bureau urged, in accordance with the standards, that advertisers refrain from using claims which create the impression that special wiring for air conditioners or changes in existing installations are unnecessary.

The ARI, it was noted, has pointed out that general claims implying sufficiency of wiring and current were "not unqualifiedly true" in all cases. Both the BBB and ARI are in agreement that claims such as "just plug in," "no special wiring needed," and "operates on regular house current" should not be used.

With reference to the BBB's code relative to exaggerated price claims, retail advertisers were informed that the ARI had condemned the use of false and deceptive comparative prices and, in conformance with the standards, urged advertisers to use only claims which are accurate and provable.

Another reminder to the industry was made by the bureau relative to the advertising of discontinued models. BBB standards recommend that discontinued models be identified either by the year of the model or the fact that it has been discontinued.

Philco Names Tagnon, McKay In Appliance Service Div.

PHILADELPHIA — New appointments in the Appliance Service Div. of Philco Corp. were announced by C. H. Tomlin, general manager.

Al Tagnon has been named field service manager and Donald McKay is the new product service manager of Air Conditioning and electric kitchens.

Prior to his new appointment, Tagnon was air conditioning and electric kitchens service manager. McKay has recently been on special assignment with Philco Appliance Service Div.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

Why you get more than a motor from Century Electric

Availability, quality, and know-how—all the things you want in motors. Here's why you get all this and *more* with Century Electric motors:

Availability—Ordering is simple because you can get any motor you need from 1/20 to 400 hp. When you have a wide variety of motors from which to choose, it's easier to get the one you need. Think how you save time when you get answers to all your motor needs in one place.

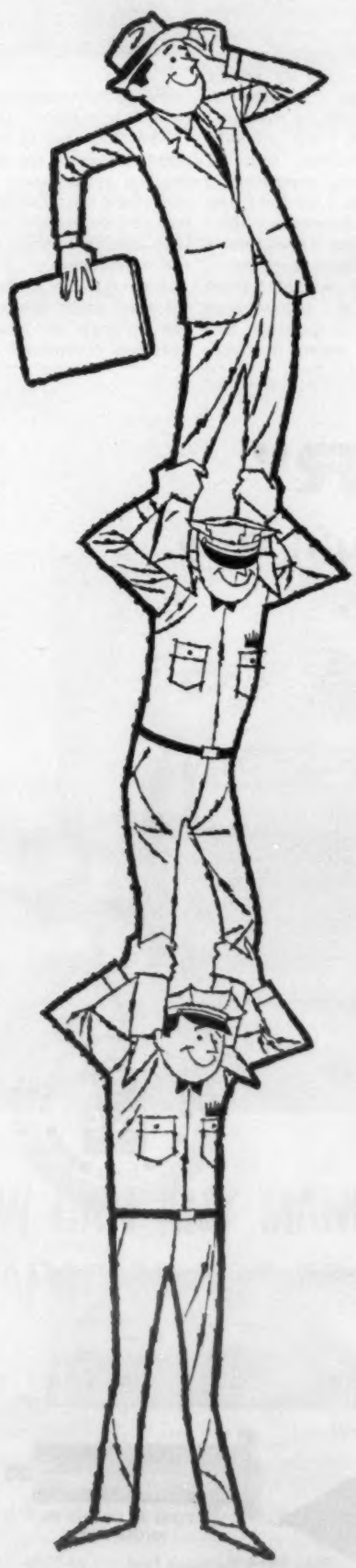
Quality—Anyone can make claims about high manufacturing standards and quality control. But the best proof of Century Electric quality comes from years of outstanding service. Ask the man who sees every kind of motor sooner or later—the service repair shop man. He'll rate Century Electric motors outstanding.

Application know-how—Century Electric sales engineers know motors. They apply, engineer and think motors and nothing but motors. They can give you on-the-spot help in selecting the right motor—to make sure you get the best one for the job.

Fast answers—You get fast answers to your motor and generator questions from Century Electric. Quotations, models, drawings—whatever you need. When you come to Century Electric you get *more* than a motor. For more information, contact your local Century Electric Sales Office or Authorized Distributor. Century Electric Company, 18th and Pine Street, St. Louis 3, Missouri.

CENTURY ELECTRIC COMPANY
St. Louis 3, Missouri *Offices and Stock Points in Principal Cities*

MEASURE YOURSELF UP WITH



Frigidaire Golden Rule Service

If there's a bigger stumbling block to future sales than a reputation for poor service—name it! And if there's a better *answer* to cut-price competition than *good service*—we'd like to know it!

Service is the one solid foundation for permanent success—*including* sales—because it's the neighborhood word-of-mouth that either makes you or breaks you in the long run.

Yet,—and here's what some short-sighted dealers never seem to learn—a good service department actually pays its own way besides!

So put yourself in your customers' position and practice Frigidaire Golden Rule Service. Your Frigidaire District Service Manager will show you how—and training at General Motors Training Centers will more than prepare your servicemen. And that Award of Merit on your wall is money in the bank with prospects and customers, too. The whole plan is yours to use for free! Give yourself a lift for today—for tomorrow, and write.

FRIGIDAIRE DIVISION
General Motors Corporation, Dayton 1, Ohio

AWARD OF MERIT

Frigidaire presents this plaque to dealers who meet and maintain specified standards which assure good service relations with customers. Possession of this plaque is a big merchandising "plus" in showroom and advertising.

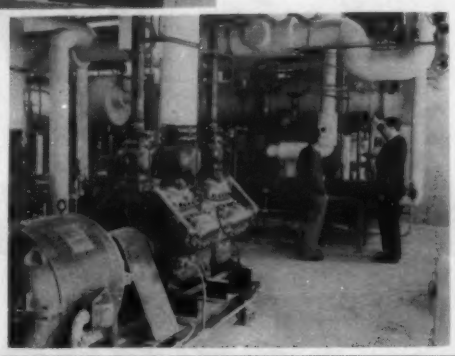
GM GOLDEN ANNIVERSARY
Frigidaire—Built and Backed by General Motors

IN SERVICE ASSISTANCE AS IN SALES

FRIGIDAIRE is on the march

Laboratory In New York State Air Conditioned Year-Round by Heat Pumps

STREET view of the engine room building containing York heat pump system at Sylvania's Amherst Engineering Laboratory. Note the four evaporative condensers-outside air coolers on the roof of the structure.



AIR source heat pump system at Sylvania's lab is enclosed in a 40 by 40 engine room. George Briley, York branch manager indicates the cooler-heater to Harry Pearl, Sylvania plant engineer. Left foreground is a 75-hp. York V/W compressor.

Automatically Controlled Heating, Cooling Needs No Supplementary Heat

AMHERST, N. Y. — When Sylvania Electric Products Co. dedicated its Amherst Engineering Laboratory here recently, it became the northernmost building to be heated by an air source heat pump requiring no supplementary heating system.

So claims York Corp., subsidiary of Borg-Warner, four of whose compound compression heat pumps cool and heat the laboratory. The laboratory does advanced electronic development work for the armed services.

In winter, heat extracted from the air, even at below zero temperatures, will produce hot water. The hot water is circulated to air conditioning apparatus throughout the building.

The same refrigeration equipment that cools the building during the hot summer months will therefore heat the 85,000-sq. ft., two-and-one-half story structure during Buffalo's frigid winter weather.

Although no estimates can be released until the system is in use through one heating season, previous compound compression heat pump jobs sold by York in the past two years, the company said, have indicated savings in operation ranging up to 20% over conventional systems.

AMHERST lab manager, Maxwell C. Scott (right), points out the temperature indicator on the supervisory data center and control panel of the York heat pump system to George Briley, who presses button to cause instrument to indicate precise temperature in a given area in the lab.

The heat pump system for Sylvania's laboratory is located in a specially designed engine room adjacent to the main building. It has a capacity of 250 tons for cooling and 2,400,000 B.t.u. per hour for heating.

The system consists of two identical R-22 systems, each made up of one 125-hp., high stage, 16-cylinder, 1,170 r.p.m., V/W compressor and one 75-hp. low stage, 16-cylinder, 1,750 r.p.m., V/W compressor; two air cooler-condensers and one 22-in. by 12-ft. water-cooler-heater. Hot or cold water is circulated to the air conditioning units by a 20-hp. pump.

There are 96 fan coil air conditioning units around the perimeter. Interior areas are air conditioned by a zoned low pressure air system through various types of ceiling diffusers.

Special areas are conditioned with a local recirculation system. Return air in these units is mixed with conditioned air to regulate temperature conditions in a given area with a load varying from 0 to 100%.

The four (two in each system) air units on the roof of the engine room act as air coolers in winter and evaporative condensers in summer. The single water cooler-heater in each system switches automatically from cooling to heating.

The entire system is automatically controlled by a Minneapolis-Honeywell data center and control system. It actuates pneumatic valves to switch from heating to cooling or vice versa.

A temperature indicating device instantaneously registers temperature levels in various parts of the building on the central control panel at the touch of a button.

The control panel also features an electronic recording temperature controller. It records the outside air temperature and the temperature of water returning to the cooler-heater. It also controls the water temperature by varying compressor capacity or number of compressors on the line.

The fan systems are located in a penthouse atop the roof of the laboratory. Total c.f.m. is approximately 65,000.

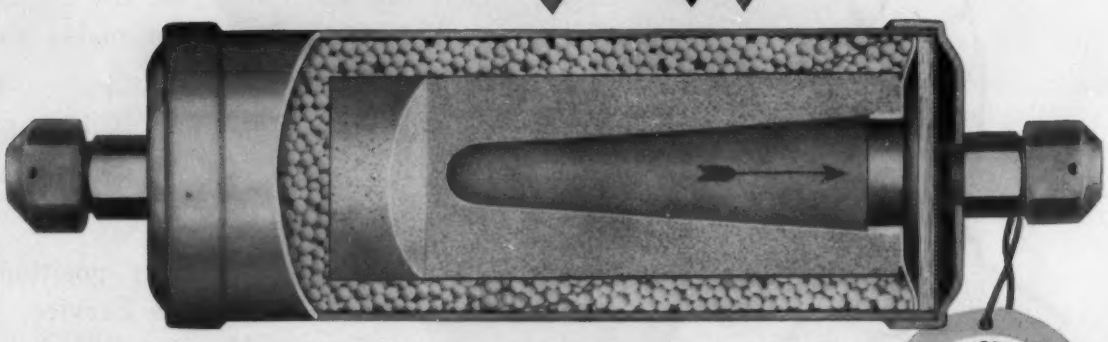
Inside summer design is 78° F. dry bulb and 50% relative humidity and 70° F. dry bulb in winter, with outside design at -5° F. dry bulb in winter and 93° F. dry bulb and 75° F. wet bulb in summer.

Architect and engineer for the new Sylvania laboratory building is J. Fruchtbaum, of Buffalo, while the John W. Cowper Co., Inc., of Buffalo, is general contractor for the project.

"DRI-COR"

The Filter-Drier You'll Buy

Again, Again, and Again !



LISTED BY UNDERWRITERS' LABORATORIES, INC. UNDER RE-EXAMINATION SERVICE FOR MAXIMUM WORKING PRESSURE OF 500 P.S.I. OR MINIMUM BURSTING PRESSURE OF 2500 P.S.I.

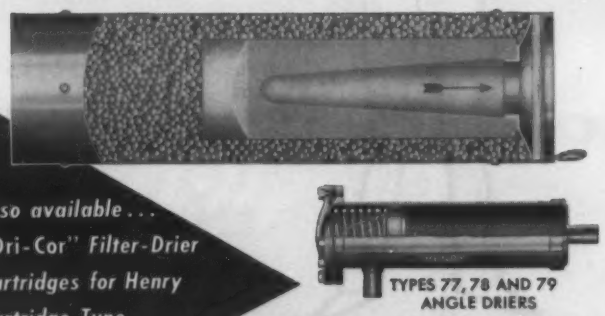
ASO-DRY® PRESSURE SEALED DRIER

THEY are designed to give you greater satisfaction. That's why jobbers recommend them and servicemen everywhere have switched to "DRI-COR".

With a ceramic fired desiccant filter-core cushioned in a bed of blended MOLECULAR SIEVES AND ACTIVATED ALUMINA, they provide high capacity drying even at relatively high temperatures, micronic filtration, efficient acid removal and low pressure drop.

Because they are pressure sealed, "They Hiss and Tell" when you loosen an end connection seal cap at time of installation—proving they are factory fresh and factory dry.

Also available . . . "Dri-Cor" Filter-Drier Cartridges for Henry Cartridge Type Angle Driers.



TYPES 77, 78 AND 79 ANGLE DRIERS

They have the same features as "DRI-COR" Filter-Driers, except that after being thoroughly reactivated each cartridge is packed in a metal moisture-proof container.

LISTED BY UNDERWRITERS' LABORATORIES, INC. UNDER RE-EXAMINATION SERVICE FOR MAXIMUM WORKING PRESSURE OF 350 P.S.I.

STOCKED AND SOLD BY LEADING JOBBERS.

HENRY VALVE CO.

MELROSE PARK, ILLINOIS (Chicago Suburb)

Cable: Hevalco, Melrose Park, Illinois

VALVES, DRIERS, STRAINERS AND ACCESSORIES FOR REFRIGERATION, AIR CONDITIONING AND INDUSTRIAL APPLICATIONS

HENRY VALVE CO. CONTROLLING FLOW SINCE 1918 ®

Mr. Louis Weiss, President, Ideal Cooler Corporation, St. Louis, Mo.

"HOW CAN ANY MANUFACTURER OVERLOOK THE IMPORTANCE OF THE PROPER REFRIGERANT CHARGE?"

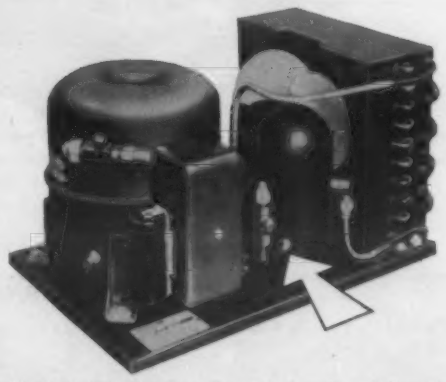
That's the emphatic question asked by Louis Weiss, President of Ideal Cooler Corporation, long-time successful manufacturer of beverage and walk-in coolers and a variety of other refrigerated fixtures.

It's a good question, too, because we all know that too little, or too much, refrigerant charge will always cause plenty of trouble. The least that can happen is the fixture won't work properly. Too much charge can actually be dangerous.

That's why the *liquid level test port*, an exclusive feature found only on Bendix-Westinghouse condensing units, is so important. It allows the serviceman to check the refrigerant charge quickly and accurately. As Mr. Weiss commented recently, "It eliminates guessing and positively insures the all-importance of the proper refrigeration charge".

Mr. Weiss' enthusiasm for Bendix-Westinghouse condensing units is typical of the 181 other new users of Bendix-Westinghouse products.

If you represent one of the companies that has yet to discover the extra value you get at no extra cost with Bendix-Westinghouse products, better send us a trial order.



Liquid Level Test Port (arrow)—handy solution to insure the right refrigerant charge.

Bendix-Westinghouse

EVANSVILLE, IND.

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio—Export Sales: Bendix International, 205 E. 42nd St., New York 17, N. Y.

Air from Factory Is Heat Source for Heat Pumps Which Handle Labs, Offices

FORT WAYNE, Ind.—Using air from inside the plant as a heat source, five 3-ton heat pumps handle the entire heating and cooling load for additional offices and laboratories constructed in the Inca Div. plant of Phelps-Dodge Corp. here.

"By using the higher temperature air from the plant in winter, we do not add to the factory heat load and we eliminate service problems on the units," declared William Cupp, president of Cupp, Inc. here. Cupp's mechanical contracting firm made the installation.

"The reverse is true for summer cooling," he added.

The heat pumps are installed in a bank above the ceiling of the 40 by 120-ft. added office and laboratory area. It is an expansion of the general office area which Cupp previously air conditioned with packaged units.

The conditioned area is divided into three separate zones with individual temperature control in each zone. Distribution is through "Agitair" ceiling outlets. Return air, boosted by an exhaust fan in each room, also travels by duct over the ceiling.

A baseboard hot water radiation system under the windows offset window losses and prevent cold air massing on the floors, Cupp said. Regulated by an outdoor thermostat, the system increases in capacity as the temperature drops.

Cupp believes that using heat pumps rather than standard cooling and heating systems, offers Phelps-Dodge several advantages.

First cost, he found, was lower than installing packaged units plus heating and about equivalent to packaged units with heating already supplied. Only extra cost over packaged units was for changeover valves.

By drawing on factory air for supply, extremes of heat and cold are eliminated.

By using warmer supply air, the units are able to turn out three times their normal heating capacity without use of resistance heaters, Cupp declared.

For a final advantage, the company gets automatic temperature control year around.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

'Outside the Walls' System Cools Sportswear Plant with No Space Loss

GULFPORT, Miss.—When E. R. Moore Co., manufacturer of women's sportswear, came to H. C. Ladner, Gulfport air conditioning contractor, for a complete factory air conditioning job, a number of unusual requirements were set forth.

The Moore plant, in Ocean Springs, Miss., required upwards of 90 tons of air conditioning equipment to provide the 80° temperature desired inside the building, and planned along with cooling the actual production areas to likewise refrigerate the warehouse area where finished garments under storage could be kept dry during high-humidity periods.

These factors were no problem to Ladner—but the fact that the manufacturer did not want to give up a single square foot of space within the 80 by 80-ft. building was a serious problem.

Ladner, whose H. C. Ladner Refrigeration Sales & Service is one of the most active Chrysler Airtemp dealerships along the Mississippi Gulf Coast, spent several days in studying the building before beginning.

'WEATHER PROOF SHEDS' USED FOR EQUIPMENT

Eventually, he came up with the solution in the form of an "outside the walls" air conditioning system which, utilizing three 20-ton Chrysler Airtemp compressors, one 25-ton unit, and one 5-ton unit, would make possible the desired temperature and low relative humidity with all equipment installed in "weatherproof sheds" spaced around the walls on the outside of the building.

The system as ultimately installed consists of three major zones, each controlled by a thermostat set in the return air ducts at the plenums, at three points around the building exterior.

"The architect drawings originally called for space thermostats," Ladner indicated. "But it has been my experience where large numbers of women are employed, use of space thermostats isn't practical. Where female employes have access to the thermostats, the chances are that they would constantly be changed, effecting the load on the entire system."

READY ACCESS PROVIDED FOR SERVICE

The system, as it operates, includes a redwood Marley cooling tower on the roof, and three completely enclosed "weatherproof sheds" which are insulated enclosures of varying dimensions, covered over with sheet metal and providing ready access through service doors at either side.

Power for each of the "outside refrigeration systems" is provided by a single bus bar which travels the length of the building, around the walls. All ductwork is located on the bar joists overhead. Insulated ductwork was used throughout, discharging through overhead grilles, spaced evenly over the three zones.

The three 20-ton compressor units cool the main production area, while the 25-ton unit handles both temperature and humidity in the finished garment storage section. The 5-ton unit services a zone which includes foreman's office, and executive office.

SPECIFY • INSTALL

ALCO

T-SERIES

•THERMO EXPANSION VALVES

REFRIGERANT
FREON-12
FROM ½ TON TO 50 TONS
REFRIGERANT
FREON-22
FROM 1 TON TO 80 TONS
CARRENE-7
FROM ¾ TON TO 60 TONS
PROPANE
FROM 1 TON TO 88 TONS

Super charges for any application.
Available with external or internal superheat adjustment and external or internal equalizer.
Widest variety of body styles and connections.

to change capacity... or to clean

Simply... loosen screws lift out cage... you never break connections

2 body designs meet every requirement...

STRAIGHT-THROUGH CONNECTIONS or RIGHT ANGLE CONNECTIONS

Call your Alco wholesaler.
Write for Specifications Bulletin No. 171-56.

• BUY SECURITY
• BUY QUALITY
• BUY ALCO

ALCO VALVE CO.
853 KINGSLAND AVE. • ST. LOUIS 5, MO.

7802

The one complete line of refrigerant controls: Thermostatic Expansion Valves · Refrigerant Distributors
Solenoid Valves · Suction Line Regulators · Flooded Evaporator Controls and Reversing Valves

TENS OF THOUSANDS OF WELDED ALL-ALUMINUM REFRIGERATORS & FREEZERS INSTALLED SINCE 1946 PROVE FOSTER'S VALUE

FOSTER

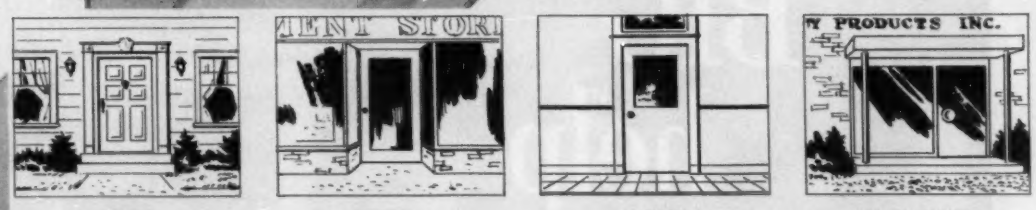
Welded All Aluminum REFRIGERATORS AND FREEZERS

Foster Refrigerator Corp. Hudson, N. Y.

Write For Complete Information Today!

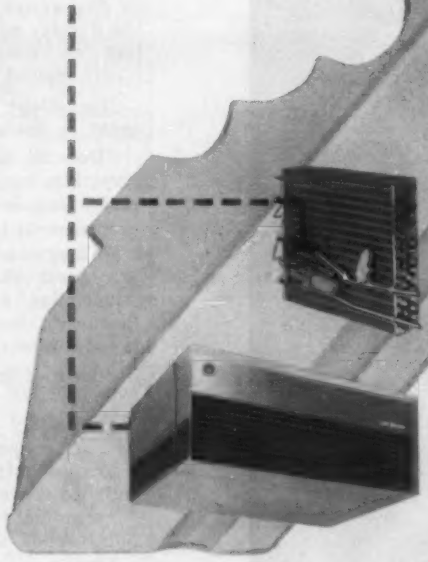
This Key

opens the door to more air conditioning sales in EVERY market



HOMES STORES OFFICES SMALL PLANTS

Built with the precision of a fine watch and the ruggedness of a bulldozer—this line of General Electric Air-Cooled Condensing Units is more versatile, more adaptable than any line you can handle. It's your key to the residential market—to homes with or without warm air heating. And it's your key to commercial and industrial markets. These weatherproofed units may be mounted anywhere, indoors or outdoors—in cellar, attic, garage, crawl space, closet, on roof or outdoor slab. In seven BTUH capacities: 22,500, 24,000, 33,000, 40,000, 53,000, 63,000 and 75,000.

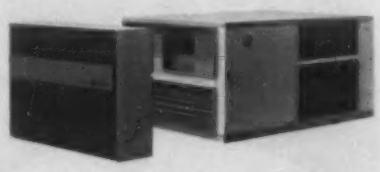


KEY TO SELLING HOMES WITH WARM AIR HEAT

G-E Air-Cooled Condensing Unit, plus G-E "A" Coil with upflow furnace – G-E Flat Coil with downflow, horizontal or parallel furnace. These coils make it easy to convert warm air furnaces into year 'round Whole-House air conditioning. With matching enclosures they provide optimum versatility and adaptability. Control option available for builder, modernization and cooling-only applications. BTUH capacities: 22,500, 24,000, 33,000, 40,000, 53,000 and 63,000.

KEY TO SELLING STORES, OFFICES, SMALL PLANTS... AND HOMES REGARDLESS OF HEATING SYSTEMS

G-E Air-Cooled Condensing Unit, plus new TE Air-Handling Unit. Unit (shown with optional air diffuser and decorative trim attached) represents high styling in the functional architectural look so important to modern installations. Provides maximum comfort in both residential and light commercial applications. Two types available—TE 500 AH (shown), and TE 300 AH. Up to 63,000 BTUH.



New air-cooled packaged cooling unit opens still more sales in every market. Compact, handsome, self-contained air conditioners for homes with or without duct system. Decorative diffuser-filterframe for commercial in-space installation. Uses no water. Easy to install in attic, crawl space, basement, or hallway—on roof, through transoms, on slab, or through wall. Protected for low and high pressure. Efficient, man-sized compressor easily cools an entire home, store or office. Quiet performance. Ideal cooling unit for modernization-replacement and commercial market. Capacities in BTUH: 24,000, 30,000 and 36,000.

OPERATION upturn
Build sales and jobs in '58
GENERAL ELECTRIC

OPERATION UPTURN means General Electric will go all out to accelerate an upturn in business in 1958. It will help boost G-E dealer sales and profits. So get in on the ground floor! For complete details of OPERATION UPTURN and a General Electric franchise, call your nearest General Electric Distributor—listed in the yellow pages of your phone book—or mail coupon. General Electric Company, Air Conditioning Dept., Tyler, Texas.

GENERAL ELECTRIC

In Canada: Canadian General Electric Co., Ltd., Montreal

ACD 10

General Electric Co.
Air Conditioning Department, Tyler, Texas

I would like complete information on the General Electric Air Conditioning Department Franchise—and OPERATION UPTURN.

Name_____

Firm Name_____

Address_____

City_____ Zone____ State_____

AROUND THE WORLD IN 50 DAYS

"Inside Dope" by GEORGE F. TAUBENECK

(Concluded from Page 1, Col. 1)

tions, astute, yet so warmly a goodfellow that he'd rather make his associates happy than bank an extra buck. (Mrs. Beveridge, incidentally, resembles Willo Taubeneck so much that she made "Dope" homesick.)

Taylor of Email, Barker of Kelvinator, Sam Hort, Bill Western . . . we could go on and on mentioning names of B.P.O.E. (best people on earth) Australians who impressed us.

Enough of This Love Making

Warning to travelers: Aussies can kill you with their exuberant kindness, if you aren't careful. They're so eager for you to see every wondrous jot-and-tittle of their enormous Empire during your too-short stay, and they're so ruggedly healthy themselves, that they don't realize that visitors can't keep up with them. Their 20-hours-a-day hospitality could demolish the stamina of a young Jack Dempsey.

'Way back in 1937 . . . 21 years ago when "Dope" was a vigorous young man . . . he made his first Australian tour. It was nearly his finish. So, prior to this 1958 visit, "Dope" sent advance letters something as follows:

"Australians' are my favorite people. BUT: I'm not young any more. Last time (1937) you nearly had to bury me on Australian soil. PLEASE: take it easy this time.

"Five years ago I retired as the undefeated, undisputed, unloved, and unhappy World's Champion Walker Through Factories. Please, no factory walking marathons. Two years ago I retired as a pub-crawler. Please, no all-night tours of cabarets.

"Furthermore, I'll need time in my hotel room alone at night occasionally to write for AIR CONDITIONING & REFRIGERATION NEWS. Although I appreciate the spirit in which you intend your grand hospitableness . . . PLEASE?"

You can guess what happened. Walked miles and miles through factories. Sat up until dawn again and again . . . listening and talking and partying . . . rolled out of a hard bed regularly at seven o'clock in the morning to accommodate radio, newspaper, and television interviewers. . . .

These wonderfully hospitable and generous Australians came quite close to burying "Dope" prematurely on their soil again.

It was in Adelaide . . . geometrically laid-out home of Kelvinator, Coldstream, Chrysler, and Pope . . . that "Dope" collapsed. Fell right on his puss and knees, for no good reason except utter fatigue.

Highly-cultured Bill Western, along with goodfellows Bill Pomeroy, Dave Chapman, and Jack Clarke, revived this poor old hulk . . . and went right on showing him the City and continued walking him through its factories.

Great Partnership

Back to the GOOD things: Australia's QANTAS airline can be recommended unstintingly. It has never suffered a disaster, nor lost a life *en route*. Moreover, its personnel comprise a fine contrast to transportation clerks and crews elsewhere.

Perhaps the biggest thrill in Australia came when Fred Goodman and John Day ushered us through Melbourne's Shrine Park . . . a memorial to World War II soldiers.

Atop a hill in this park are three equal-height flagpoles. Center flagpole flies Australian colors. On the left is the British flag; on the right, the U.S.A. "Stars and Stripes." It's an inspiring sight . . . and an indication of the partnership between these nations which is a bright hope of the Free World.

As written previously in this column, U.S. and Australian corporations have become partners on a really big scale since World War II. Our businessmen in the two great Pacific Ocean nations think alike and deal alike. They get on well together right from the start.

Last Laughs

Sam Hort, who has worked in the United States many years (off and on) has a merchandising suggestion to end our "recession." His recommended slogan would be:

"PAY NOW. BUY LATER."

And handsome, clever Ted Clifton . . . who would be great in Hollywood either as an actor or gag-writer . . . tells us about the Sydney advertising man who lost an account because his ulcers healed.

His client decided that he must be loafing.

"Dope's" fatigue in Adelaide gave him opportunity to resurrect a couple of oldies.

Almost at his tiredest moment a Sydney newspaper telegraphed a request that he try to sell advertising to Adelaide manufacturers. Return telegram was inevitable:

"Go to Hell. Insulting letter follows."

Previously a sleepless night had been spent in a two-story Adelaide hotel adjacent to the railroad tracks. Every half hour . . . rumble, rumble . . . and the hotel shook all over.

"What time," we phoned the night clerk, "will this hotel arrive in Melbourne?"

Arthur Godfrey, Jr.

In the United States "Dope" never has appeared on television, and seldom on a radio broadcast. Down here it was like Arthur Godfrey—"on" almost all the time. From three to five times a day.

We "guested" on such programs as "What's My Line?," "Twenty Questions," etc. And were interviewed on every conceivable type of subject by radio interviewers and on television.

Although trying and exhausting, it was an unusual experience. For the first time in his life this traveling man was respected by bellhops and waitresses.

"I saw you on the TV last night, sir. Can I bring you another cup of coffee?"

BIG help on refrigeration jobs... BIG reducing tees
Reducing tees in larger sizes have now been added to the NIBCO line. They save unnecessary bushings, save time and effort. Formed from copper tube like all NIBCO wrot fittings, these big reducing tees have high metal density . . . no porosity, no weepage of refrigerant gases. For the complete line of NIBCO wrot copper fittings, SEE YOUR WHOLESALER OR WRITE
NIBCO
NIBCO INC., Dept. H-6204
Elkhart, Indiana
These cuff links are made from 3/16" NIBCO wrot tees. Big, little, or in-between . . . there's a NIBCO wrot copper fitting for your exact job.
Fig. No. 9611-R (4⅛" x 4⅛" x 3⅛"—actual size)

Typhoon Pre-Season Dealer Meetings

Has Business Methods Seminar, Product Showing, Application Problems Help

BROOKLYN — Typhoon Air Conditioning Co. tried its hand at tailoring its pre-season dealer meetings to regional needs with considerable success, reports John Gilbreath, vice president for sales.

"Although the meetings were quite different, we got the kind of response we were looking for in each area," he declared.

For midwestern dealers, Typhoon arranged a business methods seminar, Gilbreath said, because business organization appeared to be the major problem in this area. (A report on this meeting was published in the Jan. 27 issue of the NEWS, page 13).

For eastern dealers, who had ready access to Typhoon's factory staff here to help solve their problems, a simple new product showing was staged. A representative display was set up in a mid-Manhattan hotel and dealers could come view it at their convenience over a two-day period. They talked with Typhoon personnel on an informal basis.

West Coast meetings at Los Angeles and at Spokane, Wash. were planned to help dealers in technical problems of application.

"We gave dealers the kind of technical information they need to plan the best installation at lowest cost for each application," Gilbreath said.

He felt that these school meetings, combined with day to day contact with Typhoon field men, permit dealers to give West Coast customers the same specialized service offered by New York dealers.

While Typhoon feels that its 1958 pre-season meetings were closely tailored to the needs of its dealers throughout the country, the company indicated that it won't necessarily follow the same pattern next year.

A review of this year's accomplishments will determine next year's needs, Gilbreath asserted. Additional meetings may be scheduled in the south and southwest.

Alter Ads Push Dealer's Air Conditioning Service

CHICAGO—A newspaper advertising campaign is being conducted by the Harry Alter Co., Chicago distributor of air conditioning and refrigeration parts and supplies, "as a service to the air conditioning industry."

This series of ads, appearing in the *Chicago Tribune* both daily and Sunday, tells the public to get their air conditioning equipment serviced and installed now to avoid the hot weather rush, and simply to consult the yellow pages in the phone book for the names of their nearest dealer.

The Alter company does no service, installation, or any retail selling itself, but is running the advertising in an effort to stimulate pre-season activity for its trade accounts.

In commenting on this program, Harry Alter said: "Everyone in air conditioning must continue to educate the public that better workmanship, and lower prices are obtainable before the hot weather rush.

"We are suggesting to all of our air conditioning customers that they too start some promotional activity along these lines and we believe that other manufacturers and distributors also should undertake programs that would stimulate pre-season sales and service business."

In a letter sent to Chicago area trade accounts, the company suggested that they tie-in with its ad campaign "by doing these few simple things:

"Put a sign on your trucks saying, 'Get your air conditioners installed and serviced now—before the hot-weather rush'; mail letters or circulars telling the same story to your old customers; telephone the owners you have previously sold suggesting that now is the best time to have their equipment checked and started up."

Deane To Leave Tuck-Aire, Join Contracting Business

SAN FRANCISCO — Jim Deane is leaving Tuck-Aire Furnace Co. here, where he is vice president and general manager, to join his brother Ben about June 1 in the general contracting business, it has been announced.

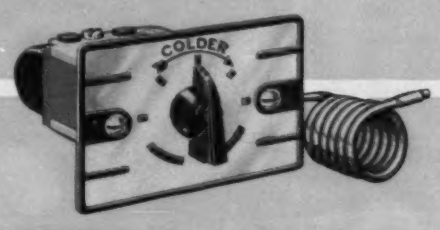
Jim Deane will take over administrative duties as vice president of B. C. Deane Co., a corporation with offices in Van Nuys, Calif., builder of residential construction, apartment houses, and home tracts in California and various other states in the western areas.

Associated with Jim Tuck at Tuck-Aire for 19 years, Deane leaves under the most friendly conditions in order to accept a business opportunity he felt he should not pass up, it was pointed out.

Deane has served National Warm Air Heating & Air Conditioning Association as director and vice president, and the Warm Air Heating Institute of Northern California as director and vice president, it was indicated.

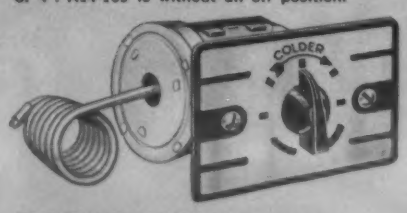
RANCO CONTROLS

put the PLUS in your air conditioning profits

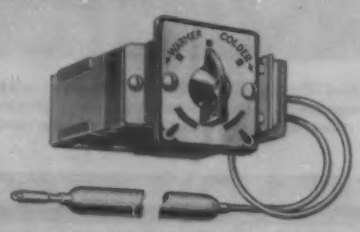


TYPE A10 CONTROL
Minimum differential of 5° prevents frequent cycling of compressor and possible over-cooling of some rooms. Available with off position (A10-1596) or without off position (A10-1564).

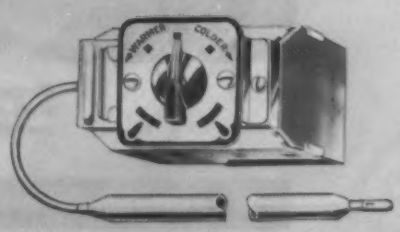
TYPE A14 CONTROL
For air conditioners equipped with heater or reversing valve for heating or cooling to be used with manual selector switch to change from heat to cool or cool to heat. Maximum differential of 4°. A14-109 is without an off position.



TYPE A15 CONTROL
Features use with 1½ hp, 230-volt a.c. units. Has 4½° fixed differential and without off position. Adaptable to cooling only or to heating and cooling with manual selector switch. A15-105 with small air coil. A15-116 with long bulb to overcome cross ambient conditions.



TYPE C12 CONTROL
3° maximum differential and without off position. C12-5010 adaptable to cooling only, or to heating and cooling with a manual selector switch. A constant run position is on coldest point of dial.



TYPE C17 CONTROL
3½° fixed differential. C17-100 permits automatic changeover with reversing valve from heating to cooling. 30° temperature range. With no off position. For step operations with compressors only, step heaters for independent space heating or heaters in conjunction with heat pump operation.

New sales to old customers!

Your customers will like the extra comfort, convenience and savings . . . you'll like the extra profits . . . when you install Ranco Controls to make old-fashioned air conditioners automatic.

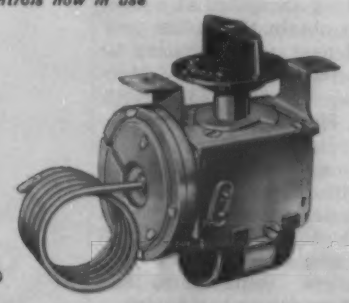
You're wise to come to Ranco for your air conditioning controls. Here are controls for many applications adaptable to fit most units. You can be sure of the kind of performance and customer satisfaction that gives repeated business.

Ranco Controls are easy to sell and easy to install —truly the serviceman's aid.

Step up to extra sales, extra profits from long time customers. Stop in at your Ranco wholesaler and get full information on profit-producing Ranco replacement controls.

Ranco INCORPORATED
COLUMBUS 1, OHIO

More than 100 million Ranco Controls now in use



TYPE A13 CONTROL
With a fixed differential of 3°, the A13 cycles automatically to maintain even cool room temperatures selected by dial pointer. With off position on A13-110 and without off position on A13-109.

Industry-Wide Sales Campaign--

(Concluded from Page 1)

page advertisement in the July issue of *House Beautiful* magazine. Names of participating manufacturers will be listed.

Honeywell estimates the new program will involve an expenditure of at least $100,000. A similar amount originally was invested in the "Project Warm Hearted House" promotion, but final costs were closer to $200,000, the company said.

"Key to the air conditioning promotion is a brightly written new 24-page consumer book, prepared by Honeywell in consultation with industry leaders," it was pointed out. "The booklet—an educational vehicle—is designed to take the mystery out of air conditioning for the average homeowner, and to create a desire for its benefits."

Honeywell is making copies available at cost to participating manufacturers, who in turn will handle distribution through their own organizational setups. To date, orders have been filled for more than half a million copies. Copies also will be distributed to consumers on request.

COSTS, FINANCING COVERED

"The easy-to-read consumer booklet contains information on the difference between cooling and year-round air conditioning, what size cooling unit is needed for a particular home, how much it will cost to own and operate an air conditioning system, the types of financing available, the various refrigeration and controls systems offered, and a check list of the things a homeowner should consider before purchase."

Two pages of the booklet have been reserved for two-color advertising messages by original equipment manufacturers. Space is reserved on the back page for the manufacturer's logo and his dealer's imprint. After receiving an initial free quantity of booklets, both dealers and manufacturers can obtain additional copies for a nominal charge.

OFFER SALES BOOSTERS

Honeywell also will furnish participating dealers with a complete set of sales booster aids, including window and wall banners, sample ads, offer of radio and television spot commercial scripts, sample direct mail letter, and stuffer.

Any contractor, wholesaler, or dealer wishing to participate in this nationwide central air conditioning campaign at a local level can obtain the entire promotional package by writing to Minneapolis-Honeywell Merchandising Dept., 2753 Fourth Ave., S., Minneapolis, Minn.

Participating manufacturers were given a month to organize air conditioning sales campaigns with their own dealers and wholesalers before Honeywell made a blanket mailing to 72,000 dealers, contractors, and wholesalers across the nation.

"Many manufacturers have tied in the new program with already-scheduled campaigns, which indicates that central air conditioning will receive an unprecedented push from all segments of the industry during 1958," according to the firm.

"About 200,000 families this year will start enjoying a new way of life—central air conditioning," K. L. Wilson, Honeywell vice president, said. "This campaign will spotlight for the homeowner the facts about air conditioning and do much to correct the misconception in the public mind that it is expensive to buy and operate."

Wilson added that Honeywell's sponsorship of such industrywide programs as the RAC campaign and "Project Warm Hearted House" (which, he said, won the support of 10,300 dealers, 60 manufacturers, 200 wholesalers, and several trade associations) reflects the company's basic philosophy.

"To get increased business," he explained, "it is better to expand the whole market than to seek a larger share of a stable market."

Moisture Indicators—Their Nature and Field Use:

*By W. E. Wischmeyer and J. E. Hoffman, Sporlan Valve Co.**

It is now well know that drying a refrigeration system results in trouble-free performance and longer life. In addition, the introduction of the "five-year warranty" has intensified the manufacturers' interest in dehydration and moisture problems. While moisture limits have not yet been positively established, 15 p.p.m. is the usual figure for maximum moisture in Refrigerant-12, and 45 p.p.m. is an acceptable figure for Refrigerant-22, although the estimates vary from 10 to 70 p.p.m.

Practically speaking, the problem in the field is to determine when these safe levels have been reached. How do you know when you are dry enough?

While manufacturers are able to determine moisture content of refrigerants with laboratory equipment, the serviceman needs a method which can be applied in the field while he is working on a unit. Quite often he has no way of knowing a system is too wet, until too late.

A serviceman in Atlanta was drying out a system after repairing a leak in the water-cooled condenser of a remote meat case. After using two 48-cu. in. drier cores, the serviceman sent the second core to the manufacturer for a moisture analysis. The results, which took three weeks to obtain, showed that the system was still wet.

Two more core changes with intermediate moisture analyses were required before the system was completely dried. Much time could have been saved if the serviceman had had some way of checking for moisture right on the job.

And such a moisture indicator has been developed. In this indicator the change in color of a moisture sensitive paper is viewed through a sight glass, and the moisture content of the refrigerant is indicated by the color of the paper. The principle is like that employed for many years in indicating desiccants. Both silica gel and activated alumina are available in this form.

The mechanism of these moisture indicators are based on the fact that certain chemical salts absorb moisture to form hydrates that have a different

*From a field presentation based on laboratory and field studies.

Why Bundyweld® Tubing meets high

Evaporator of Bundyweld Tubing is attached with spot-welded clips to inner shell of Norge freezer. Bundyweld is thin enough to conduct heat fast, yet strong enough to take most any assembly operation without collapsing or leaking.

BUNDYWELD IS DOUBLE-WALLED FROM A SINGLE STRIP

Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness, and

passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.

← **NOTE** the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

How Do You Know When System Is Dry Enough?

color than the dry or anhydrous chemical salt. While many salts absorb moisture, only a few change color in the process. Perhaps the most widely known salt of this type is cobalt chloride which is blue when dry and pink when hydrated.

DRY (BLUE)
cobalt chloride + water =

WET (PINK)
cobalt chloride hexahydrate

Indicators of this type change color in a definite range of relative humidity. When exposed to air, for example, cobalt chloride changes color at about 20% r.h. Other factors which determine just when a specific chemical will change color are the amount of salt used, the carrier material, and the medium in which it is tested.

For use in refrigeration systems, a porous paper is impregnated with an appropriate indicator salt. Cobalt chloride, impregnated on paper, has been used in many applications, but to date has not been used in the refrigeration industry.

The ideal moisture indicator for refrigeration purposes should give a distinct color change between wet and dry—a definite pink-to-blue or yellow-to-green, rather than, say, a white to yellow which is not so easily distinguishable. The color change should be rather sharp and must occur at the correct moisture levels. For R-12 the ideal indicator should show one color below 15 p.p.m. moisture and another color above 15 p.p.m. For R-22 the colors should be distinctly different above and below 45 p.p.m.

For convenience, the ideal moisture indicator should be applicable, on a single paper, to either 12 or 22, and the effect of temperature must be known and accounted for.

An indicator of this type, once developed and calibrated, is frequently sensitive enough for laboratory use and practical enough for field use by the serviceman. Simply by comparing the color obtained on the system with a color calibration chart, a close estimate of the p.p.m. of moisture can be obtained.

Since the color change is based on relative humidity, or relative saturation of the refrigerant, the p.p.m. of moisture required to effect the change varies with the temperature.

A practical example of the effect of temperature occured in St. Louis. An open frozen food display, with 0° F. evaporator temperature operating off an air-cooled condenser was installed in March; the unit was charged with R-12. During installation, difficulty with moisture was encountered and the system was dried until the moisture indicator showed full green.

The weather was cold, resulting in considerable sub-cooling, and the liquid line temperature was about 75° F. As shown on Chart I, these conditions indicated a moisture content of less than 5 p.p.m.

Three months later, in hot weather, the unit acted erratically as if it were freezing up, although the moisture indicator still showed green. At first, the serviceman doubted the reliability of the moisture indicator. After a little thought, however, he realized that the liquid line temperature was now about 115° F. and that at this temperature the indicator would show green until the moisture content reached 15 p.p.m. which maybe sufficient moisture to cause freeze-up at these low evaporator temperatures.

He changed the drier on the unit, and it has operated satisfactorily since.

CHART I

Refrigerant	Liquid Line Temp.	Moisture Content in PPM: Dry Color (Green)	Caution Color (Chartreuse)	Wet Color (Yellow)
12	75°F.	Below 5	5-15	Above 15
12	100°F.	Below 10	10-30	Above 30
12	125°F.	Below 20	20-50	Above 50
22	75°F.	Below 30	30-90	Above 90
22	100°F.	Below 45	45-130	Above 130
22	125°F.	Below 60	60-180	Above 180

Liquid Line Usually At About 100°

On most systems the liquid line temperature is about 100° F. Those which vary appreciably from this average can be easily detected by feeling the liquid line. If it is cool, use 75°; if it is about body temperature, use 100°; if it is hot, use 125°.

The chart also points out that three shades of color are provided for estimation. On most indicators of this type, there is a range of moisture between final color changes. So long as this range is not large and so long as it coincides with maximum permissible moisture, there is no problem.

In practice the intermediate color will not be often seen, for a system is either wet or dry.

The chief values of a moisture indicator are that it tells the serviceman when to change driers and that it enables him to evaluate his installation and dehydration methods to determine which give the best results in the field. Different procedures can be tried and their effects evaluated by the color obtained on the moisture indicator. If the serviceman consistently obtains the dry color, this is ample evidence that his technique is good.

The moisture indicator is usually mounted in a sight glass and the device therefore serves the purposes of indicating moisture and indicating liquid refrigerant supply. Bubbles in the sight glass would indicate a shortage of refrigerant or a restriction in the liquid line. With this latter function in mind, the sight glass should be mounted downstream from the drier and just ahead of the expansion device.

Exact Spot Unimportant

From the standpoint of moisture indication, the exact spot of installation makes little difference, so long as it is in the liquid line. Equilibrium will be reached at any point in the liquid line, but to give the moisture in the system time to permeate the indicator paper and give an accurate moisture indication, the system should be operated 12 hours with the indicator installed.

While the advent of the moisture indicator is a big step forward in the art of refrigeration, the indicator is not a "wonder drug" that will cure all the ills of refrigeration systems. Rather it is a "stethoscope" that will aid the serviceman in diagnosing trouble and knowing when action is required.

standards of newest Norge freezer

Exclusive process makes Bundyweld stronger and more resistant to vibration fatigue . . . leakproof by test

Norge Division of Borg-Warner Corp. has set rigid specifications for steel refrigeration tubing: stamina in service; ruggedness in assembly. *Only* Bundyweld® Tubing measures up to these high standards. Here's why:

An exclusive process (shown below, left) gives Bundyweld Tubing high bursting strength and exceptional resistance to vibration fatigue . . . meets Norge's rigid cleanliness specifications. Bundyweld takes brazing and mechanical operations in stride; stays *leakproof by test.*

Norge specifies some 125 feet of double-walled Bundyweld for its horizontal freezer *alone* . . . uses miles more in:

- **Evaporators**—Wrap-around coils for horizontal freezers; serpentines for wire-tube cold shelves in upright freezers.
- **Condensers**—Combination condenser—anti-sweat coils for horizontal and upright freezers; refrigerator serpentines for brazed wire-and-tube condensers.
- **Compressors**—Variety of fabricated, sub-assembled parts.

Bundy® leads in engineering and fabrication, too. Design aid from Bundy engineers is yours for the asking. If you need fabricated parts, Bundy mass-produces them economically. Or if you fabricate parts, Bundyweld is available in clean, straight lengths, and in coils up to 2,000 feet long.

Cash in soon on this combination: world-famous Bundyweld Tubing and moneysaving Bundy services. Call, write or wire us, today!

BUNDY TUBING COMPANY, DETROIT 14, MICHIGAN

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, ENGLAND, FRANCE, GERMANY, AND ITALY

Condenser within outer shell of Norge freezer doubles as anti-sweat coil; its heat helps prevent condensation on outer walls. Coils have been prefabricated at low cost by Bundy; delivered to Muskegon, Michigan, far in advance of need.

There's no real substitute for

BUNDYWELD® TUBING

Bundy Tubing Distributors and Representatives: ***Northeast:*** Chas. H. Stamm, 10 N. Main St., West Hartford, Conn.; Austin-Hastings Co., Inc., 226 Binney Street, Cambridge 42, Mass. • ***Middle Atlantic:*** Atlantic Tube & Metals, Inc., 451 New Jersey State Highway #23, Wayne, N. J.; Rutan & Co., 1 Bala Ave., Bala-Cynwyd, Pa. • ***Midwest:*** Lapham-Hickey Steel Corp., 3333 W. 47th Place, Chicago 32, Ill.; Midco Supply Company, 1346 South 20th Street, Omaha, Neb.; Williams and Company, Inc., 901 Pennsylvania Ave., Pittsburgh 33, Pa. • ***South:*** Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg., Chattanooga 2, Tenn. • ***Mountain:*** M. L. Foss, Inc., 1901-1927 Arapahoe Street, Denver 1, Colo. • ***Southwest:*** Vinson Steel & Aluminum Co., 4606 Singleton Blvd., Dallas, Texas • ***Northwest:*** Eagle Metals Co., 4755 First Avenue, South Seattle 4, Wash. • ***Far West:*** Pacific Metals Co., Ltd., 2187 S. Garfield, Los Angeles 22, Calif.; Pacific Metals Co., Ltd., 1900 Third Street, San Francisco 7, Calif.

Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

They'll Do It Every Time

by Jimmy Hatlo

NO! ON SECOND THOUGHT, I THINK WE'LL PAINT THE WALLS···
YEAH! PAINT! LET'S PICK OUT SOME COLORS!
AFTER LOOKING AT 3,000 ROLLS OF WALL-PAPER··· THEY'LL DO IT EVERY TIME···
THANX AND A HAT TIP TO MARGE JASON, 35 ARROWWOOD RD., CONASSET, MASS.
JIMMY HATLO
2-21
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Residential Year-Round Air Conditioning Needs Cooperative Effort

AFTER SEVERAL YEARS of slow and unsatisfactory progress, it has become apparent that the residential air conditioning *industry* needs cooperative selling effort.

This does not imply any criticism of the individual ideas or methods of the industry's pioneers.

In the process of establishing the idea of whole-house year-round air conditioning, as with any new development, the "cut and try" method has prevailed, as far as merchandising is concerned.

But there comes a time when covetous attitudes of groups within must be replaced by enlightened cooperative development of the market by the whole industry. (And by "industry" we mean all segments of business having a future in the home comfort market.)

With all the criticism directed at the auto industry these days, we should remember that Detroit has done pretty well in designing and marketing a product highly acceptable to the public. Auto companies didn't "specialize" in station wagons, or convertibles, or hard-tops—or any single type of car. Each company found success in the full line—supplying whatever the customer wanted.

In air conditioning today, however, some associations promote "convertibles," others promote "station wagons," and others champion "hard tops" and confusion reigns as they try to out-promote each other—or more likely—debunk each others system of air conditioning.

While some manufacturers, associations, and business publications argue about "who owns air conditioning," astute dealers and contractors are quietly going about the job of supplying a full line—giving John Q. whatever he wants.

All these contractor-dealers need is a louder "voice" locally—and a major campaign nationally to educate the public on what we're selling—assuming the "industry" can agree on its own definition of what we're selling.

John Q. asks these questions: "Why should I buy cooling?" "What will central heating do for me?" "Why should I go to an air conditioning dealer to buy heating?" "Why should I go to a plumber to buy air conditioning?" This latter question is being answered possibly, by the already-working program of the Plumbing-Heating-Cooling Information Bureau.

This PHC Bureau formed late last year is showing itself as an alert, aggressive, and highly constructive body for cooperative promotional effort, especially as it works locally. The Bureau's work is not confined to plumbing, or heating, or cooling—but is balanced well—doing a good job for cooling—albeit "hydronics."

But the public is being confused by lack of *all-industry* cooperation. There's no unified voice—no complete, understandable story for *air conditioning*.

With the announcement of the SMAC (Sell More Air Conditioning) program at the ARI Hot Springs meeting, a national promotional plan to sell the public on the many benefits provided by air conditioning is crystallizing. It is desirable that this program be comprehensive in its scope, and not limited to cooling only. It is desirable for all elements of the home comfort industry to support this major effort. And SMAC should receive the support of more than just ARI members. Anyone with a stake in year-round air conditioning nationally would be feathering his own nest by getting into the act.

With groups such as the Plumbing-Heating-Cooling Information Bureau and the National Warm Air Heating & Air Conditioning Association working at the dealer level and SMAC selling the merits of air conditioning on a national consumer scale, the public should see the light — the market should boom.

But the bickering about "who owns air conditioning" should give way to major cooperative effort among manufacturers and associations as well as dealers and contractors.—ELH

He drew a circle that shut me out—
Heretic, rebel, a thing to flout,
But Love and I had the wit to win:
We drew a circle that took him in.

Outwitted—EDWIN MARKHAM

Cheerful people, the doctors say, resist disease better than the glum ones. In other words, the surly bird catches the germ.—*Nuggets.*

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark reg. U.S. Pat. Office; Est. 1936

AIR CONDITIONING & REFRIGERATION NEWS

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F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

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'WATER PIPE PLUMBER' CLAIMS HE DID 'EXACTING' JOB

Editor:

Your story in a recent issue of AIR CONDITIONING & REFRIGERATION NEWS headed "Cooled Tracking Stations Trace 'Vanguard' Rise," was very exciting and paid due tribute to the air conditioning industry except that you did not mention the very special services required of the installer of this exacting and wonderous piece of equipment, who was none other than a water pipe plumber who doesn't know the difference between a discharge line and a suction line, and the appearance of the installation of this ultra scientific apparatus is enough to frighten a foal from a mare.

The entire setup must really be sensitive and exacting reference to yours very truly White Sands Proving Ground job.

B. F. BROWN

OWNERS ARE BEST HOME COOLING ADVERTISING

American Standard
Air Conditioning Div.
Elyria, Ohio

Editor:

I have read with very great interest the feature in "Dope" in the April 7th issue entitled, "Residential Air Conditioning Needs A Visible Status Symbol."

Of course, everyone immediately thinks of television aerials, mink coats, and triple chromed tail fins as you mentioned. I wonder, however, what visible status symbol one could ascribe to the phenomenally successful high-fi craze which is presently sweeping the nation.

Unless one would say that you could turn your high-fi set on loud enough so that it could be heard all over the neighborhood, certainly no one outside of your own home would know you had it unless . . . You were so proud of it, and the prestige it gave you, that you bragged about it all over town.

In this case it is clear to see that high-fi, no pun intended,

(Concluded on next page)

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10 per year.

AIR CONDITIONING & REFRIGERATION NEWS 5-26-58
450 W. Fort St., Detroit 26, Mich.
Send the NEWS every week for: ☐ One Year $6. ☐ Three Years $12.
☐ Payment Enclosed ☐ Bill Me ☐ Bill Company

Name.....
Company.....
Street.....
City..... Zone..... State.....
IMPORTANT: Company's Type of Business.....

(Concluded from preceding page)

has an audible status symbol. It's not the sound of the high-fi itself that is heard across the nation, but the sound of bragging owners.

As we have been emphasizing in our promotional efforts, and as you have been constantly hammering away, nothing sells air conditioning like air conditioning. The du Pont Survey showed that neighbors of owners are the best prospects three to one. Every air conditioning owner represents a strong beachhead for further sales.

It seems to me that the family with central residential air conditioning has a lot more to brag about than does the person with a new high-fi installation, or for that matter a new set of extra large tail fins. One of our big jobs is obviously to make the largest number of people aware of all the things they will have to be proud of.

We all know that word-of-mouth advertising is a more powerful and persuasive kind. It is up to all of us to keep working away at the educational job which must be done to make people know and understand all of the benefits which are theirs with central air conditioning.

As it stands now, owners of air conditioned homes are our best advertising medium. They know what they have got, they are happy with it, they talk about it, and they educate their neighbors. We have given every owner of air conditioning an unbeatable "audible status symbol." The trouble is that the vast majority of people do not realize all the wonderful things that will happen when their homes are centrally air conditioned. Until they do, even a visible status symbol will be of little use . . . once they do, the visible status symbol becomes unnecessary. A visible status symbol is usually associated with things that are purchased largely for "conspicuous consumption." We have much more to offer than this.

WILLIAM P. SHEEHAN,
Manager, Advertising & Sales Promotion

CRUEL, CRUEL, GAME—THIS AMERICAN BASEBALL

2115 Miles Ave.
Kalamazoo, Mich.

Editor:

I enjoy your column Inside Dope very much and would like to contribute a true story that happened about twenty five years ago.

I used to listen to a radio sportscaster by the name of Bob Newhall from WLW Cincinnati. The Cincinnati ball club at that time had a pitcher by the name of Shaut (pronounced shot). When announcing the ball scores for the day, 'Cincinnati having been beaten,' Bob gave the score of the game and announced the losing pitcher was Shaut. The next night he announced some woman in Kentucky had called him and said they shot horses in Kentucky when they broke a leg, but she did not know they shot pitchers in Cincinnati when they lost a ball game.

CHARLES HASSAN

WONDERS ABOUT SERVICE CHARGES SURVEY

Perkiomenville, Pa.

Editor:

Your issues of the NEWS of Feb. 26, 1951 and March 5, 1951 respectively, serial 1145 and 1156 have a service price survey. There has not been any since. Do you intend to make another survey? How do these prices compare with the prices of the present time? Do you care to hazard a guess?

Labor has about doubled since 1950 and parts have increased from 10% to double and more.

About a year or so ago I read of a survey in the state of New Jersey. I can not find the issue therefore I would not say it was published in your Great News. However, if I remember correctly the average commercial rate was about $4.50 an hour. Your survey of six years previous shows $4.25 per hour. This certainly is not progress; or did I miss something in the report?

On closing, I would like to say your publication serves our industry very well. I have been a subscriber to your paper for the past 10 years and look forward to the receiving of each succeeding issue.

FRANK J. DICE

* * *

Answer:

A survey of prices for service parts and labor, made among contractors in communities of many different sizes, in New Jersey, was published in the Feb. 25, 1957 issue of the NEWS.

A reprint of this material, with additional pertinent information on service maintenance contracts, has been published under the title "Service Maintenance Contracts and Average Charges for Service Parts, Operations," and is available from our headquarters office at a cost of 50 cents a copy.

With respect to hourly labor charges, the survey showed that the *most frequent* charge per hour for a man's time was $5.50. The *minimum* charge was $4.50.

DECRIES RESTRICTION ON GOODS TO RED CHINA

Recold Corp.
Los Angeles, Calif.

Editor:

A situation has been called to my attention that should be of vital interest to our industry. Refrigeration and air conditioning equipment made in the U.S.A. cannot be purchased by Hong Kong firms and resold to Red China; however, these same firms are buying from England at much higher prices and reselling it in Red China.

I can understand our Government restricting the export of war materials to Red China, but for the life of me, I fail to see any justice in a situation which allows one of our allies free access to a market which we are not allowed to service. If we are to continue giving the taxpayers' money away to our allies, I think it's high time that we be allowed to compete with our allies on an equal footing.

Practically everyone I have met during our 60-day dash around the world has a kind word for you and AIR CONDITIONING & REFRIGERATION NEWS. Several have commented that they wish they did not have to *wait so long* for delivery, and one friend asks for an International Section in the NEWS.

H. T. JARVIS,
President

Regardless of the installation or size... *whether it's commercial, air conditioning or ammonia,* there's a perfect combination of Sporlan Catch-Alls, See•Alls, Solenoid Valves, Thermostatic Expansion Valves, Refrigerant Distributors and Level-Master Controls that is scientifically engineered to give you a hook-up with right down the line peak performance every time!

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Move Four Tons of Outside Air Into Store Every Minute To Air Condition 125,000 Sq. Ft.

Dampered Plenum Rooms Control Air to 24 Sprawled Out Zones

Job:	Carson Pirie Scott department store in Hillside, Ill. shopping center.
Goal:	Flexible automatic year-round air conditioning.
Problem:	Moving four tons of outside air per minute to cool, heat 125,000-sq. ft. building without undue noise or cost. Mix it to hold steady temperature, humidity in 24 zones.
Solution:	Central system with two series of plenums, each with 60,000 c.f.m. fan. Heating, cooling ducts dampered so air is always mixed to 60° F. in summer, 72 to 100° F. in winter.
Equipment used:	Two Chicago Blower fans, three 125-ton Westinghouse compressors, Sturtevant coils, Marley cooling tower, Barber-Colman controls, Carnes air diffusers.
Consulting Engineer:	John G. Whiting, Chicago.

HILLSIDE, Ill.—Located in one of the country's newest and largest shopping centers, the Carson Pirie Scott suburban store here prides itself on one of the most flexible air conditioning systems in a department store.

The sprawling Carson Pirie Scott building covers some 125,000 sq. ft. To adequately condition it, more than four tons of outside air are moved into the building every minute.

Setting this air in motion, controlling its temperature and humidity, and circulating it to 24 zones in the store was the problem facing John G. Whiting, consulting engineer, who designed the system.

Three 125-Ton Compressors

To cool the store, Whiting selected three 125-ton Westinghouse reciprocating compressors using "Freon-12." They are located in the basement at the rear of the store.

Adjacent to them he installed two series of three plenum rooms, opposite each other. Since each series is identical, it is enough to describe one of them.

In the first room, or fan chamber, a 54-in. Chicago blower fan, rated at 60,000 c.f.m. was installed. One entire wall of the chamber, measuring 14 by 15 by 18 ft., is made up of an air filter through which the fan draws outside and return air.

Duct Runs from Roof to Basement

This air reaches the filter through a lath and plaster duct that runs from the roof of the three-story building to the basement. The duct, about the size of an elevator shaft, services both ends of the system.

Outside air passing through the fan is discharged into a plenum room measuring 14 by 15 by 12 ft. The lower half of the wall opposite the fan discharge opening is made up of a series of baffles and Sturtevant cooling coils.

The upper or heating half is made up of similar baffles and a series of steam coils. The air is blown through these two halves with equal force.

Next the air moves into the mixing damper chamber. Here the warmed or chilled air is divided by a horizontal partition that separates the room into halves. At this point the air encounters 24 dampers, 12 above the partition and 12 below.

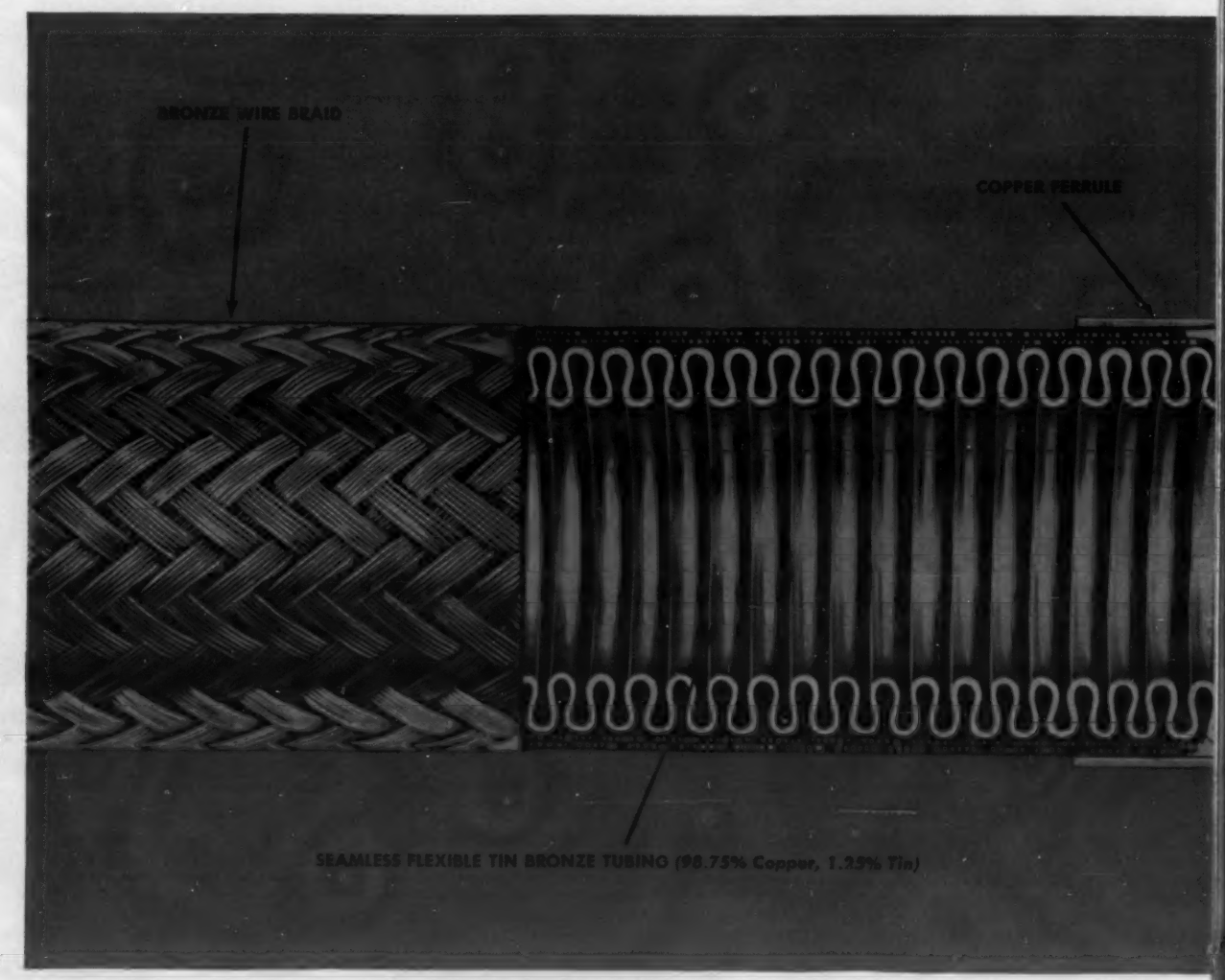
Each of these dampers controls the flow of conditioned air to a separate zone in the store where it is diffused through Carnes ceiling diffusers. The dampers' position — open or closed depending on the zone requirements — is controlled by Barber-Colman thermostats located at strategic positions in each of 12 departments.

Thus, for instance, when the outside temperature is 35° F.,

(Concluded on Page 19, Col. 1)

Dampers Control Cold Air In Store's Flexible Air Conditioning System

LEAVING the cold deck of coils the air encounters these 12 dampers in the Carson Pirie Scott Hillside, Ill. store's flexible air conditioning system. Above the galvanized sheeting is a similar set of dampers controlling the hot deck air. Damper position is controlled by thermostats located strategically in departments of the store. Small motor and linkage can be seen beneath each damper.



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The right metal for the job. Core of the American VE is a seamless, flexible tubing made of a *special tin-bronze alloy* tailored specifically for the refrigeration and air conditioning industries – engineered to stand up under vibration while carrying gases and liquids under pressure. Because the core is *seamless*, there are no joints or laps where leaks can start.

For extra strength and durability, the flexible core is covered with bronze wire braid securely brazed in place. Double braid affords extra protection on all American VE's 2⅝" O.D. or larger.

Clean, dry, tested, protected. Before it is shipped, the final assembly is cleaned, pressure-tested, oven-dried, and sealed in a vaporproof polyethylene bag. You have a factory-fresh unit to install in the line ... clean, inside and out!

Packaged for your convenience, protection. Boxes containing American VE's are sturdy, easy to open, easy to identify. No confusion or fumbling. Simplified installation instructions in each box make your job easier. Insist on VE's with the stamping "American" on the ferrule ... an Anaconda product.

(Concluded from Page 18, Col. 1)

the upper or heating damper will be three quarters to fully open, while the lower or cooling damper will be nearly closed. The positions of the upper and lower deck dampers would be reversed on a summer day.

After the heated air passes through the damper, it enters a duct which carries it a short distance to a point where it rejoins the air from the cold deck.

Optimum Temperature Air Moves In Ducts

The heated and cooled air mixes and continues through the single duct at the optimum temperature of 60° in the summer or 72 to 100°, as necessary in the winter.

Thus, regardless of whether it is 35° or 105° outside, the system automatically adjusts itself to provide "just right" temperature and humidity.

The dampers are proportionate in size to the needs of the individual zones. Cold deck dampers are 48 in. high and vary in width from 12 to 30 in. Hot deck dampers are 36 in. high and vary in width as the cold deck dampers do.

The thermostats in the separate zones control small electric motors mounted just below the dampers. Any deviation of temperatures from the optimum actuates the motors which change the position of the dampers to correct the situation.

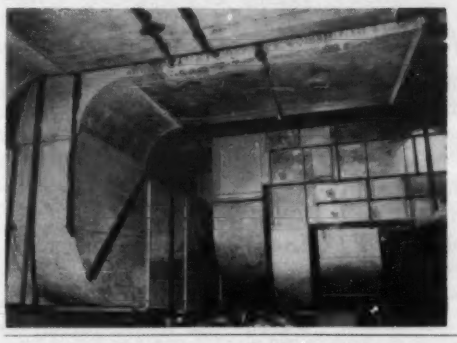
During the winter, when the air is apt to be dry and cold, a humidistat, situated in a central location in the store, actuates a steam release in the plenum between the fan discharge point and the hot-cold decks. The humidistat releases steam into the air stream automatically.

"Early in the planning stage of the system we gave considerable thought to the type of fan we would need," Whiting said. "Because of the proximity of public traffic area, we needed a unit that operated quietly, and we needed a fan that would give us a high level of efficiency.

The Chicago Blower airfoil fan met these requirements because of the blade design, he said. It has an airfoil or airwing shape that allows it to move through the air more smoothly, creating fewer eddy currents and less turbulence.

Because the fan wheel moves through the air with less turbulence, less than 50 hp. is needed to turn it. According to Whiting, a conventional bladed fan would have required a motor with at least 60 hp.

Cold, Warm Air Mix in Duct, Travel to Departments



AFTER passing through dampers, cold and warm air meet a few feet away in these ducts to create optimum temperature in keeping with zone requirements. The air then travels on through the duct to various departments of the store.

Refrigeration Machines

New Bldg. To Have 'Largest Single Units Ever Made'

SYRACUSE, N. Y. — Two long-established records for air conditioning of office buildings will be exceeded in the 60-story Chase Manhattan Bank building now under construction in New York's financial district, it has been announced by Carrier Corp.

CLAIM TO BE LARGEST

The new structure, the announcement said, "will have the largest air conditioning system for a single commercial office building, and two of its four refrigeration machines will be the largest single units of their type for air conditioning."

Charles V. Fenn, vice president of Carrier's Machinery & Systems Div., reported that the total daily cooling capacity for the building will be 9,140 tons.

Until this Carrier equipment was ordered by Raisler Corp.-Kerby Saunders, Inc., mechanical contractors jointly associated for the project, the Merchandise Mart in Chicago had held the top position for 25 years, with 8,500 tons of cooling capacity, Fenn said.

The Chase Manhattan will be the first installation of centrifugal-type refrigeration machines of more than 3,000 tons capacity per unit, it was stated.

The two new, compact Carrier machines will exceed by 15% the output of the largest-size units on similar duty, according to the company. Jaros, Baum & Bolles is the consulting engineering firm on the project.

HIGH VELOCITY AIR

Each of the new 3,500-ton units, driven by steam turbines, will be paired with a standard 1,060-ton machine adjacent to air-handling apparatus. One set of two units will be located on the 11th floor and the other on the 31st floor. From these locations, air will be sent at high velocity to control outlets rimming the periphery of each floor, to interior spaces, and to six underground levels.

Chilled or warm water will also be circulated to 6,745 modular-sized "Weathermasters"—the largest number of these room-control units ever to be installed in one building.

"These high-velocity induction units will neutralize the transmission of extremes of sun or cold through a glass area comprising two-thirds of the building wall," it was pointed out.

"The motorless devices will automatically maintained desired conditions under control of the occupants of each individual room area."

"It's possible for one office to be cooled while an adjoining one is heated," Fenn stated.

The first shipment of air conditioning system equipment to the site bounded by Nassau, Williams, and Liberty Sts. will be made in less than a year. Occupancy of the headquarters for some 9,000 Chase Manhattan employes now spread among nine different buildings is expected to begin by mid-1960.

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AMERICAN VIBRATION ELIMINATORS—*listed by Underwriters' Laboratories through sizes 3½" O.D.*—are sold by leading distributors everywhere. For descriptive folder, write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd. 57206

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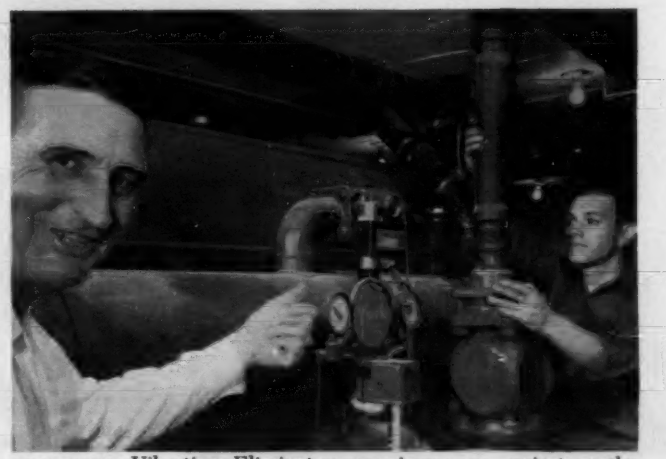
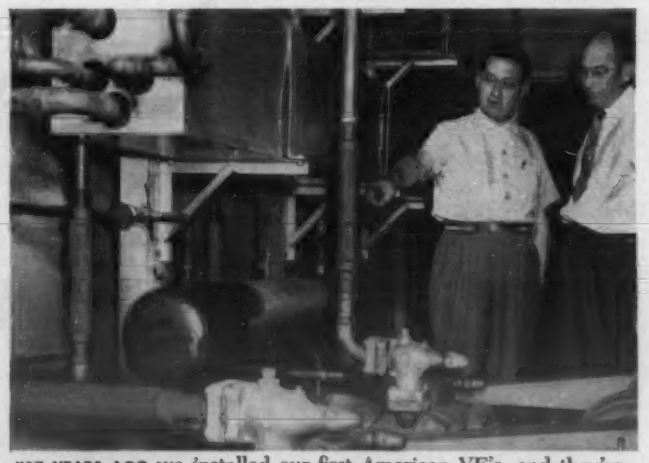


"AMERICAN Vibration Eliminators are insurance against costly return service calls"—Tom Stough, Co-owner, Southern Air Conditioning and Refrigeration Co., Hot Springs, Arkansas.



"17 YEARS AGO we installed our first American VE's—and they're still our choice today"—S. L. Sloan, Jr., Mechanical Air, Inc., Rochester, New York.

"LOW-COST business insurance . . . that's what we call American Vibration Eliminators"—United Refrigeration Service, Inc., Columbus, Ohio.

Adjusting, Balancing Year-Round System (1)

Sees Unsatisfactory Air Conditioning or Heating Job When System Is Designed and Final Steps are Omitted

In this issue and the next, Ross Wallis, vice president of Meyer Furnace Co. tells how to balance a forced warm air heating or year-round air conditioning system.

He tells where and where not to locate the thermostat, how to set the blower for continuous air circulation, how to balance the heating side, and how to balance the cooling side.

The installer's job is not finished until this is done, he insists.

E. LANSING, Mich.—Proper adjustment and balancing of a forced warm air heating or year-round air conditioning system may be even more important than good design and installation, Ross Wallis, vice president of Meyer Furnace Co. declared here recently.

"Without it, the job just won't give satisfactory results," he told heating and cooling dealers attending a short course sponsored jointly by the National Warm Air Heating & Air Conditioning Association and Michigan State university.

Certain Assumptions

"When we design a system, we have to assume certain conditions on which the design is based," the Peoria, Ill. heating equipment manufacturer explained.

"For example, when we figure the heat loss we select heat transmission factors which we believe will some closest to representing the actual amount of heat that will be transmitted through the materials used in the building.

"However, no matter how accurately we attempt to figure the heat loss, we have no way of knowing for sure how close our figures are to what the actual heat loss of the completed building will be.

"Likewise, other assumptions must be made during the design procedure that introduce further possibilities of inaccuracy.

System Is Flexible

"Fortunately, this forced air system of heating is so flexible that inaccuracies in design can usually be covered up by good operating conditions.

"But on the other hand, the most carefully engineered layout coupled with the best installation practices, using good equipment and good materials, will not produce satisfactory comfort conditions if that final important step of balancing and adjusting is omitted.

"It's a sad situation that in our industry there are probably many more contractors who never balance a job than those that do. They cut their prices so thin to get a job that by the time they get it installed they can't afford to do anything more.

What Results?

"And what are the results? We have a system that is capable of producing comfort to such a degree that the occupants of the house are hardly aware of the heating at all.

"But actually, it becomes in many cases a noisy, alternately hot and cold, thoroughly unsatisfactory system that is almost impossible to live with.

"And who suffers from this failure to finish the job? The unfortunate people who *have* to live with it?—Of course.

"The sloppy contractor who installed it? Sure. He doesn't realize it yet, but he's working himself out of business.

"But they aren't the only ones. You and I and everyone else connected in any way with warm air heating feel the effect of every unsatisfactory installation.

"The dissatisfied user probably will eventually buy some other type of heating system, and our whole industry suffers every time this happens."

For proper procedure for adjusting and balancing a forced warm air heating system for continuous air circulation, Wallis recommended Manual 6 of the series published by NWAHACA.

While the manual goes into complete detail, Wallis in his talk outlined the important steps and reasons for them.

Thermostat Location Is 'Important'

"One of the factors that has a great deal to do with the final adjustment and balancing of the system," he said, "is the location of the thermostat.

"By the time the job gets to the balancing stage, the installation is finished, and the thermostat is located. It's expensive to relocate it if it isn't right. So it's important that this matter be given careful consideration at the proper stage of the construction.

"The thermostat should be located where the temperature is representative of the entire house and where the control of temperature is most important to the occupants.

"Bear in mind that a temperature change that affects the thermostat and not the occupied space of the house may cause unsatisfactory results.

"The thermostat should be located on an inside wall where there is free air circulation and just high enough where it will not be obstructed by furniture. About four to four and one half feet is usually satisfactory.

"It is a house heating [illegible] business don't know how, or [illegible] required to do proper balanc[illegible]

—American Institute of [illegible] air heating industry.

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The secret is in the simplicity and soundness of the controls

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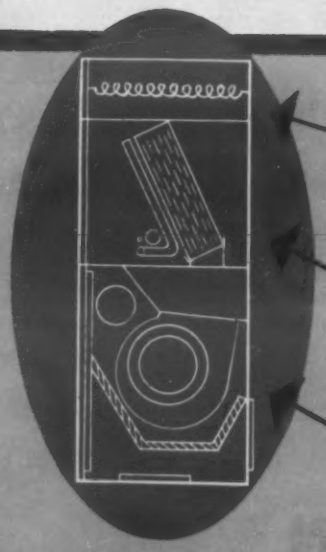
The simple and exclusive Lennox "sequencer" control for the resistance strip heaters positively paces the starts of each 4 or 6 kw strip. "Sequencer" prevents simultaneous electric load caused by compressor and heat strip starting at the same time.

The compressor is not just a standard unit with reversing valves. Compressor as well as both indoor and outdoor coils are of *special design for heat pump work.* Your assurance of longest practical compressor life and minimum service problems.

These are a few of the features that enable Lennox to produce the highest C.O.P.*—higher than any other prominent make on the market!

* *Coefficient of Performance: heat output per input watt.*



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Quietest blower in the industry . . . combined with exclusive hammock filter. Automatic 2-speed motor control available where needed. More air volume delivered with reduced horsepower.

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...agedy that more dealers in the ...re unwilling to spend the time ...g and adjusting."
...lanagement report on the warm

"Thermostat locations to be avoided:

"a. Near unusually hot or cold spots.

"b. Where subject to excessive vibration.

"c. In a room where temperature is greatly affected by the sun.

"d. Near outside doors or windows.

"e. On outside walls.

"f. In entry halls.

"g. At the foot of stairways.

"h. Where the sun can shine on it.

"i. Behind doors or furniture.

"j. Any room with auxiliary heat such as a fireplace.

"k. Near a range, water heater or refrigerator.

"l. Where affected by registers, diffusers, air ducts, chimneys, or water pipes.

"m. Near lamps, radios, or television sets.

"n. In small room directly above furnace or adjacent to furnace room.

"o. In interior halls which have a small heat loss or gain.

"p. Wall location behind which is a heat producing appliance such as range, oven, or incinerator.

"Those are some of the important things to keep in mind when locating the thermostat. If you do it will make your balancing job much easier."

"Now, let's assume that the installation is complete and we're ready to do the job of balancing.

"If the job is finished in the summer it is not likely you'll have much success trying to do any balancing at that time. But it is advisable to make a temporary adjustment of the blower speed and blower control and be sure the blower is running quietly.

"After a little experience you can set the blower speed close enough for a temporary adjustment mainly by the feel of the air at the outlets.

"Remember that the customer's first impression of his new installation will come when he first starts to use it in the fall.

First Impression

"If you have made even a partial adjustment chances are his first impression will be good. If not, his first impression will probably be bad and you'll have a mental hazard to overcome before he's a satisfied customer.

"It is generally recommended that the final balancing be done when the outside temperature is below 40° F. I think it's a good idea to tell the customer that so he'll know what to expect.

"So, for our final balancing, we select a day when it's below 40° outside, when the wind is about normal. You'll probably get better results if it's a cloudy day rather than sunny.

"The best procedure is to set the blower speed for CAC first and then balance for uniform temperatures.

"Why set the blower for CAC?

"Well, in order to offset the heat loss of the house, we have to deliver a certain amount of heat to all rooms. We can deliver that heat in intermittent blasts of hot air resulting in too much heat when the blower is running and then a chilly condition when it's off.

"Or we can deliver a smaller steady flow of mildly warm air and deliver the same total quantity of heat, but do it uniformly.

"Which method will produce the greatest comfort is so obvious that you'd think it wouldn't be necessary to even mention it, but we know that isn't true. Although we've been preaching CAC for several years, far too many jobs are still being left with the blower running way too fast and the fanswitch set to start the blower at 175° F. and stop it at 150° F.

"The reason we set the blower for CAC first and balance afterward is that with the blower running continuously there is such a complete mixing of air throughout the house that the job sort of balances itself. In many cases there is little damper adjusting to do.

Recommendation for Proper Blower Speed

"The recommendation in Manual 6 is to set the blower speed so that with the burner and blower both running continuously the temperature rise of the air passing through the furnace will be about 90° F.

"Procedure for Setting Blower for CAC:

"1. Open all register and diffuser valves and duct dampers except runs installed for cooling only. Those should be closed. If job has already been balanced for cooling, mark damper positions before changing them.

"2. Filter should be reasonably clean.

"3. During test we want blower and burner both to run continuously so set room thermostat at highest temperature to keep burner running, and

"4. Set limit control at maximum setting so it won't shut burner off, and

"5. Set fanswitch at lowest setting so blower will run continuously.

"6. Check temperature rise through furnace. Use thermometer in return plenum and in supply duct where it won't be affected by radiant heat. Temperature rise should be about 90°. If more than 90° increase air delivery. If less than 90° decrease air delivery.

"7. Set fanswitch cutout point about 10° above room temperature.

"a. Set thermostat down to bottom of scale to shut off burner.

"b. With burner off and blower still running furnace will cool down.

"c. When temperature on thermometer in supply duct reaches 10° above desired room temperature slowly move fanswitch setting lever up the scale until blower stops. Pay no attention to scale reading.

"8. Set fanswitch differential at minimum.

"9. Set limit control differential at minimum and return to desired operating temperature usually 175° to 200°.

"10. Re-set room thermostat to desired temperature.

"Manual 6 gives many more details such as changing blower speeds, belt tension and belt alignment, etc."

Next week: How To Balance For Heating and Cooling.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
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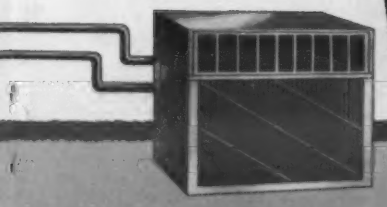

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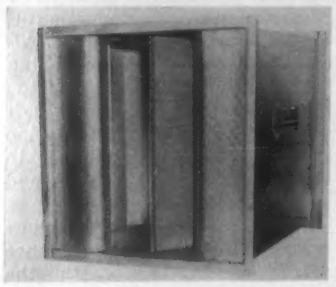
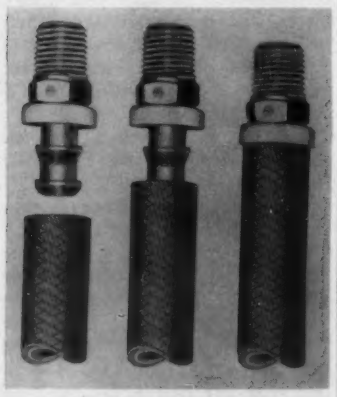


Adds Modular Silencer to Line

A new production line modular silencer has been added to the line of "Quiet-Duct" silencers for air conditioning and ventilating systems manufactured by Industrial Acoustics Co., Inc., Dept. AC&RN, 341 Jackson Ave., New York City.

These "Mod-U-Silencers" were designed to achieve additional economies by reducing installation costs in new as well as older buildings.

Available in full sizes, 24 by 24 by 30 in.; in half sizes, 24 by 12 by 30 in.; and in quarter sizes, 12 by 12 by 30 in.; each Mod-U-Silencer is rated for airflow, pressure drop, and performance by a certified, independent laboratory. Where additional performance requirements are necessary, the Mod-U-Silencers can be installed in "parallel" to handle large volumes and can be placed in "series" for additional noise control, the manufacturer pointed out.



Hose Ends Make Faster Assembly

Faster, easier on-the-job hose assembly installations are claimed with new "Barb-Tite" push-on hose ends by producer Weatherhead Co., Dept. AC&RN, Ft. Wayne, Ind.

Wrestling with hard-to-handle lines and skiving of hose are claimed eliminated; first push the hose on to barbed inserts and the hose assembly is ready to put into use.

Barb-Tite push on hose ends are machined from tough dense extruded bar stock. The manufacturer says the precision machining of the barbed insert assures a positive grip leakproof seal to withstand working pressures up to 250 p.s.i. with a minimum burst pressure in the hose end of 1,000 p.s.i.

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THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.
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MARSH INSTRUMENT COMPANY
Sales Affiliate of Jas. P. Marsh Corporation
Dept. D., Skokie, Ill.

Develops Flexible Foil-Faced Insulation

Incombustible "Fiberglas" flexible foil-faced duct insulation designed for external application on all concealed ducts and exposed round ducts carrying cold air has been announced by Owens-Corning Fiberglas Corp., Dept. AC&RN, Toledo 1.

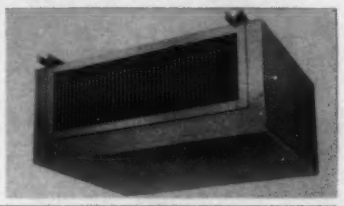
The product can be applied rapidly, because it is light in weight and includes a flange for sealing joints, resulting in lower installation costs. The foil facing provides a tough, efficient vapor barrier, the company said.

Minimum densities range from ½ to 1 lb. per cu. ft. and moisture absorption is less than 2% by weight. The product is odorless.

Cabinet Room Units Offered In 8 Models

A new series of cabinet and concealed-type room unit air conditioners in eight models ranging from 1½ to 10-ton capacities with improvements and refinements has been introduced by A. H. Witt Co., Inc., Dept. AC&RN, 940 N. Sycamore Ave., Los Angeles 38.

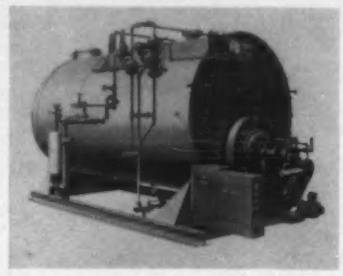
"Zone Air" needs no ducts.



Introduces Packaged Steam Generator Line

A new line of completely packaged steam generators available for firing all grades of fuel oil, gas, or combination oil-gas has been announced by Western Boiler Co., Dept. AC&RN, 1600 N. Indiana St., Los Angeles 63.

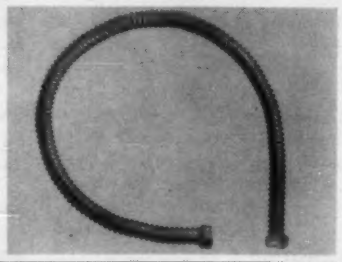
Of advanced three-pass design, these boilers are available as forced draft, induced draft, or pressure forced draft units. First two range from 25 to 600 hp. while pressure forced draft models run from 10 to 100 hp.



Has Flexible Metal Water Line Connectors

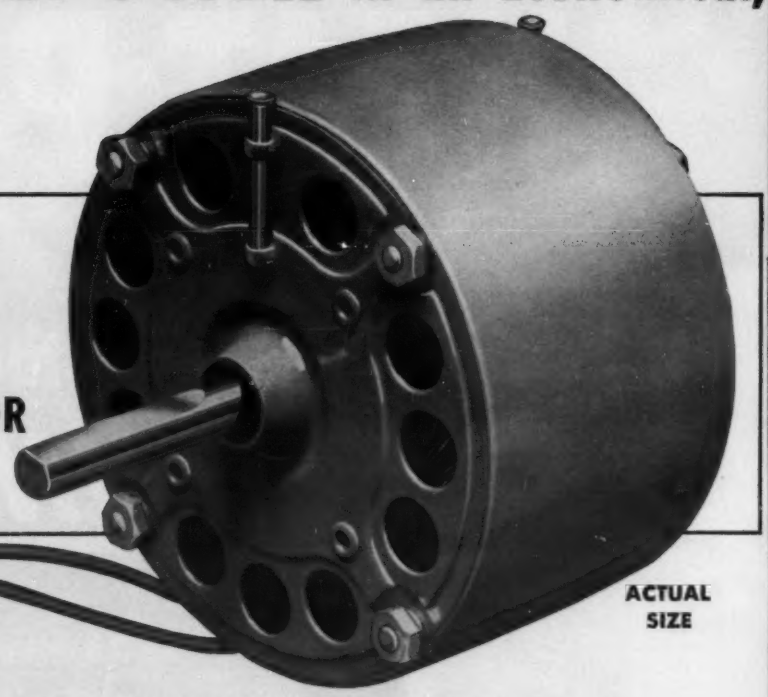
New flexible metal water line connectors, for use in connecting lines wherever water is carried, have been introduced by Cobra Metal Hose, Dept. AC&RN, 5059 S. Kedzie Ave., Chicago 32.

Made of seamless bronze metal tubing by "Rafold" process, they are helpful for tough-to-get-at installations. Because of the flexibility of the connectors, installation can be put away from walls.



MORE HORSEPOWER in an Economical,

NEW
Redmond
AL-4 MICROMOTOR



ACTUAL SIZE

Designed for a Wide Variety of Applications . . . or can be Tailor-Made for Specific Requirements

Here is a motor designed and styled to meet the modern demands for motors that are smaller, and lighter, and yet have increased output. It is ideal for heating, ventilating, air conditioning or refrigeration equipment, for appliance applications, and for business and vending machines, pumps, tape recorders, and dozens of other applications.

The patented Redmond Tri-Flux design, which is illustrated and described in the box below, greatly increases the efficiency and starting and running torques of the new AL-4 over conventional motors of this size.

The Redmond Uni-Cast construction allows the precision manufacturing that results in a motor that is smooth-running and quiet in operation and that can be depended on to give years of service-free performance and whisper-quiet operation.

The basic AL-4 is a 4-pole motor, 1550 r.p.m., 115 volts, 60 cycles. It is also available in odd voltages and frequencies, or in either open ventilated or totally enclosed construction. It develops 1/250th to 1/15th horsepower.

This modern motor can save money on a host of applications where economy is a factor and yet high quality is needed. If you are looking for a motor in volume quantities, let us know and we will have a sales engineer in your area contact you at once.

How Tri-Flux Design Improves Performance

The salient pole single phase induction motor has only one flux path—indicated by the white circle—between the field and the rotor. The motor is not self-starting—for commercial value a starting mechanism must be added.

The second white circle indicates the flux path added by wrapping a shading coil around the trailing pole tip. Power and uni-directional action are increased in this shaded pole induction motor, and it is now self-starting. This motor is now practical at low cost, and is used for applications requiring limited starting torque.

Note that a third flux path has been added at the leading pole tip. This was accomplished by Redmond's Tri-Flux design, whereby a "reluctance notch," which can be seen in the third white circle, is put in the leading pole tip. Efficiency and starting and running torques are greatly increased. New applications are opened to these improved, low-cost motors.

Gas Refrigerators Claimed To Hold Unvarying Cold

Its first line of gas refrigerators has been announced by Whirlpool Corp., Dept. AC&RN, St. Joseph, Mich.

All four of the new "RCA Whirlpool" gas refrigerators are claimed to obtain constant, unvarying cold for food preservation through a tiny, economical gas flame. There are no moving parts, no on-off cycling, so the refrigerators are completely silent and interior temperatures remain the same 24 hours a day, it was stated.

Top-of-the-line "Imperial" EGM-11T, is a two-door, 11-cu. ft. model with an automatic ice maker, a separate 70-lb. freezer, and automatic defrosting.

"Imperial" two-door model.

Two single-door models which will be available in July will provide 10 cu. ft. of food storage capacity, including room for 49 lbs. of frozen food in a separate freezer. Both models, the "Supreme" EGM-10 and the Supreme EGS-10, will include sliding shelves, twin porcelain enamel crisper drawers, tilt-out compartments, full-width door shelves, adjustable cold control, and porcelain enamel interiors. In the EGS-10 two lever ejecting ice trays replace the automatic ice maker.

"Custom" model EGC-9, also available in July, will provide 9 cu. ft. of storage space, including a 32-lb. freezer compartment, and features pushbutton defrosting, a glide-out meat tray, two lever-ejecting ice cube trays, twin crisper drawers, full-width door shelves, and butter compartments.

Offers 3 Larger Compact Tubular Centrifugal Fan Sizes

To meet demand for fans of increased capacity for large air conditioning and industrial processing installations, three new, larger sizes of tubular centrifugal fans delivering up to 150,000 c.f.m. at static pressures up to 12 in. have been introduced by Dryer Electric Corp., Dept. AC&RN, 164-166 Wallabout St., Brooklyn 6.

Combining the compactness and connection simplicity of tubular fans with the quiet, efficient performance of scroll types, "TC" fans, come in three new sizes.

Filter Handles 'More Air Volume'

A new high-efficiency filter designed to handle greater air volumes has been announced by Cambridge Filter Corp., Dept. AC&RN, 738 Erie Blvd., E., Syracuse, N. Y.

An increase in the depth of the new high-velocity "Aerosolve" unit to 24 in. has been made. At no increase in final pressure drop the required cross sectional area of a filter bank is decreased approximately 45% for a given air volume.

For a given duct area, the air volume can be increased 80%, the company claims.

Compact, Lightweight, Quality Package

STANDARD AL-4 RATINGS

Open Ventilated FAN DUTY

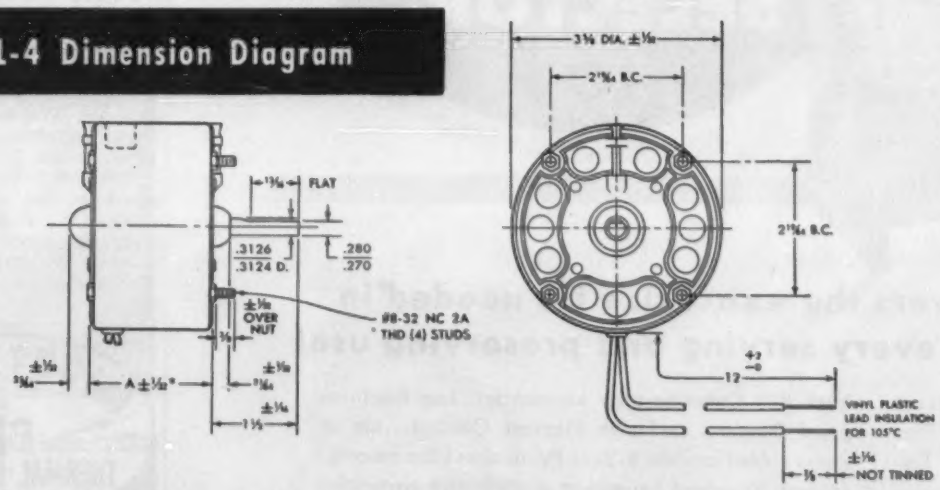
115V • 60 CYCLES • 4-POLE • 1550 RPM • ANY POSITION MOUNTING

Model Number	H.P.	Nominal Amps	Nominal Watts	Oz. in. Torque Start	Oz. in. Torque Load	A±1/32"	Weight lbs-oz.	Notes
AL4700A	1/15	2.25	150	18	45	3 9/32	4—10	(1) Horsepower ratings less than 1/75 horsepower available as developed for the specific application involved.
AL4701A	1/20	1.82	120	15	33	3 9/32	4—10	
AL4400A	1/25	1.6	105	13	27	2 23/32	3— 8	(2) Totally enclosed motors are available in all sizes in reduced horsepower ratings.
AL4300A	1/30	1.35	95	11	22	2 13/32	3—00	
AL4200A	1/40	1.2	85	9	17	2 9/32	2— 8	(3) All standard model numbers are clockwise rotation face shaft end of motor. Opposite rotation supplied on request.
AL4000A	1/75	.91	60	6	9	2 1/32	2—00	

Motors are supplied standard as shown. Also available are other features of special single or double shaft extensions, 5/16" and 3/8" shaft diameters, special casebolt extensions, sleeving over leads, other lead material including multi-conductor cords, feed-thru switches, plugs, terminals, thermal overload protectors, conduit clamps, conduit boxes, triangular mounting brackets, and special or extended oilers.

Other performance ratings for various voltages, frequencies, and loads can be supplied for your product. Our sales engineers will welcome the opportunity to assist you in developing the most practical motor for your applications.

Basic AL-4 Dimension Diagram



Call On Me for Help

"I am your service engineer. My business is to help you find exactly the motor you need for the job you want done. Just telephone, wire, or write The Redmond Co., Owosso, Michigan, and the sales engineer in your area will contact you at once."

The Standard of Dependability

Redmond COMPANY, INC.
OWOSSO, MICHIGAN

ADVERTISED IN The Saturday Evening POST

THE BIG NAME IN SMALL MOTORS

What's New

Produces Large Ice Storage Case

Maintaining a constant supply of ice cubes for resale or on-premise use is the special function of the new "Iceller," a 20-cu. ft. ice-storage case that holds up to 103 5-lb. bags of party ice, made by Manitowoc Equipment Works, Dept. AC&RN, Manitowoc 53, Wis.

Simplified storage allows purchasing prepackaged ice cubes or crushed ice at savings ranging up to 50% of the cost of on-premise ice manufacturing, the company states.

Iceller, finished in chrome trim and equipped with a removable four-position shelf, is 59¾ in. high, requires floor space measuring only 2 by 3 ft.

Furnaces Feature Jet Engine Metal

A new line of furnaces featuring a metal used to protect jet engine components from high temperature damage has been introduced by Bryant Mfg. Co., Dept. AC&RN, 2020 Montcalm St., Indianapolis 7.

The new metal, "TRI-alloy," is used in heat exchangers on all of Bryant's gas-fired furnaces. It is a metal and ceramic combination which has been fused to steel. It is claimed to not only protect from high heat but also from corrosive flue gases and condensation when the furnace is not in use. With the new metal, Bryant now gives a 10-year warranty on its heat exchangers, the company explained.

Upflow, counterflow, and horizontally mounted units are in the line, all encased in "high-style" design cabinets. The new furnaces are all adaptable to air conditioning to match residential duct systems.

MINERALLAC
STEEL
Beam Clamps
for Mounting Hangers on I-Beams

Mounts Mineralac hangers No. 0 to No. 6 on I-Beams without necessity of drilling holes. Have ¼-20 tapped holes. Fits beam flanges up to ½" thick. Low cost. Send for literature.

MINERALLAC ELECTRIC COMPANY
25 N. PEORIA ST. • CHICAGO 7, ILL.

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*

Expansion Control System Offered

An engineered thermal expansion control system that replaces the expansion tank on hot water heating systems, and is claimed to provide the permanent answer to eliminating air troubles in hot water heating systems, has been announced by American Tube Products, Inc., Dept. AC&RN, W. Warwick, R. I.

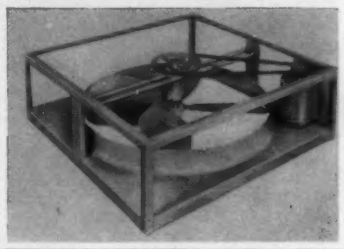
Called "Extrol" expansion control, this system is designed to eliminate the cause of air troubles in hot water heating systems, and end the problem of air-bound radiators, weeping relief valves, water-logged expansion tanks, and the resulting nuisance of unprofitable service calls to drain and recharge systems.

Announces All-Nylon Cable Clamp Line

A new line of all-nylon cable clamps has been announced by Richco Plastic Co., Dept. AC&RN, 4445 West Fullerton Ave., Chicago 39.

Du Pont "Zytel 101" nylon resin is the material from which these cable clamps are made. By utilizing the inherent strength, resilience, and flexibility of this material, the manufacturer claims savings in installation time.

Redesigns Two Low-Cost Attic Fans

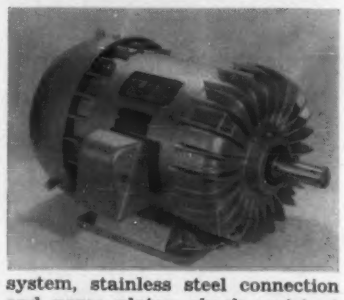


Two new redesigned, low-cost attic fans have been introduced by Lau Blower Co., Dept. AC&RN, 2027 Home Ave., Dayton 7.

Each fan is completely packaged in a single carton with motor mounted in place and the installer need only perform the proper wiring.

In addition, the new fans are mounted on felt strips.

Introduces 1 to 500 Hp. Industrial Motors

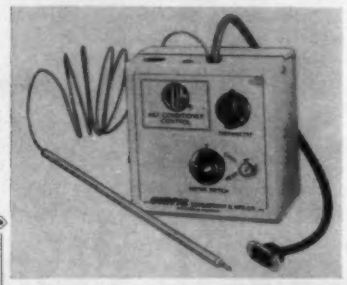


An industrial line of totally enclosed and explosion proof motors, from 1 to 500 hp., has been introduced by Electric Motor Div., A. O. Smith Corp., Dept. AC&RN, Tipp City, Ohio.

Designed specifically for industrial applications, the motors are available in the new NEMA frames through 365U, the old NEMA frame through 505, and standard industrial frames above 505 through 500 hp.

New line features recessed neoprene slingers on the output shaft, a claimed fool-proof lubrication system, stainless steel connection and name plates, shock resistant fan covers.

Expands Motor Speed Control Line



An expanded line of speed controls for shaded pole and permanent split capacitor fractional horsepower motors for air conditioning, ventilating, and heating applications has been announced by Curtis Development & Mfg. Co., Dept. AC&RN, 3266 N. 33rd St., Milwaukee 16.

Curtis Speed Control, with tapped reactor, produces the required voltage drop by introducing impedance (at any desired percentage-of-full voltage) in series with an alternating current motor where the speed changes with the applied voltage. It is a step-type control currently available with three speeds—high, medium, and low.

Organic Base Flux Is Non-Corrosive

An organic base flux that is highly active yet claimed completely non-corrosive has been developed by Anchor Metal Co., Inc., Dept. AC&RN, 966 Meeker Ave., Brooklyn 22.

This flux, designated as No. 302, strips tenacious oxides from stainless steel, steel, nickel, and nickel-chromium alloys, simplifying soldering of these metals. This activity is achieved without using zinc or ammonium chlorides, acids, or rosin. The flux has an organic base that will not attack metal in either its original form or in the residue, the company said.

Solder-Type Alloy Paste Paints On

"StainTin" (R) 157-PA, a completely new solder-type alloy in paint-on paste form for stainless steels has been developed by Eutectic Welding Alloys Corp., Dept. AC&RN, 40-40 172nd St., Flushing 58, N. Y.

StainTin 157-PA alloy is finely powdered and silver-bearing, suspended in a perfectly balanced liquid-flux composition. The operator merely paints the paste on the surface, and applies indirect heat.

EXCLUSIVE !
For Selling Customers Who Need Ice in 2 or More Sizes!

TUNES LIKE A RADIO! **Delivers the exact size ice needed in the quantity needed...for every serving and preserving use!**

You read it right! The 1958 York Cuber makes King Size, Icelets, Thinice plus an infinite variety of "in-between" sized ice—with a twist of the handy Ice-Size Selector Dial! Think what a tremendous sales story...what a fantastic sales advantage this gives you. Customers are provided with from 225 lbs. to 450 lbs. of ice per day for small or tall drinks...for iced foods or ice beds...from a single machine that occupies only 4 sq. ft. of floor space! No chains, cutters, knives...no special attachments of any kind. And it's priced to lease for only $1.25 a day—far less than most of your customers now pay for delivered ice!

York 225 Cuber is fully automatic...has fracture-proof freezer...exclusive Harvest Control...air or water cooled models. 5-Year Protection Plan on compressor. Standard ice maker models with capacities from 200 to 8,000 lbs. per day also available.

Your FUTURE and FORTUNE Now Lies With York!

YORK York B-W

York Corporation, York, Pa.
Subsidiary of Borg-Warner Corporation

MIGHTY MITE
THERMAL PROTECTORS
UL
FOR MOTOR OVERLOAD PROTECTION
MECHANICAL INDUSTRIES PRODUCTION COMPANY
223 ASH STREET · AKRON, OHIO

Fedders Air Conditioner Shipments--

(Concluded from Page 1)

possibility of a shortage of units this summer.

Fedders' success so far this year, he reasoned, was tied to its early merchandising and acceptance of heat pump room air conditioners and dealer response to the new portable line. (See story page 6).

The firm began its national advertising on heat pump models in December, three months earlier than usual. As a result, quantity production and shipments were realized sooner than ever before, Giordano said.

The portables, just introduced to the public, are intended to appeal to persons who procrastinate until the last minute and then demand immediate installation and also to do-it-yourself fans, he asserted.

"No longer will we lose sales because we could not satisfy demands of immediacy," Giordano declared.

With the company's new "Safety Fast" mounting, consumers can make their own installation without using tools and without cutting or marring the window frame. And they can complete the installation in a few minutes, he claimed.

This is how:

For the double hung window, a steel mounting plate acts as the base for the Fedders air conditioner. This base has a channel that rests against the edge of the inner sill, leaving a portion of the plate within the window line and a portion outside.

Horizontal Safety-Fast rods, one on each end of the 20-in. plate, which have bent rubber-protected ends, are pushed against the inside edge of the sill. Metal friction grips, which prevent the rods from being backed off until manually released, hold the plate firmly in place.

On the outside of the plate, two thumbscrews are used to properly level the whole base.

After proper placement of the base, the unit is set upon it and moved toward the rear until it rests firmly against the outer wall of the plate.

Two Masonite panels are provided to seal off the space between the sides of the air conditioner and the window. The panels are scored in ¼-in. increments so that just by laying them along a table edge, they can be snapped off at the proper width. There are vertical channels on the Fedders portable units into which the panels fit.

Insurance against air leakage is provided along the top of the Fedders unit by a grooved rubber gasket that fits over an angle bracket extending the width of the unit proper and the top of the Masonite side panels. The window is then closed down on this gasket for a perfect seal.

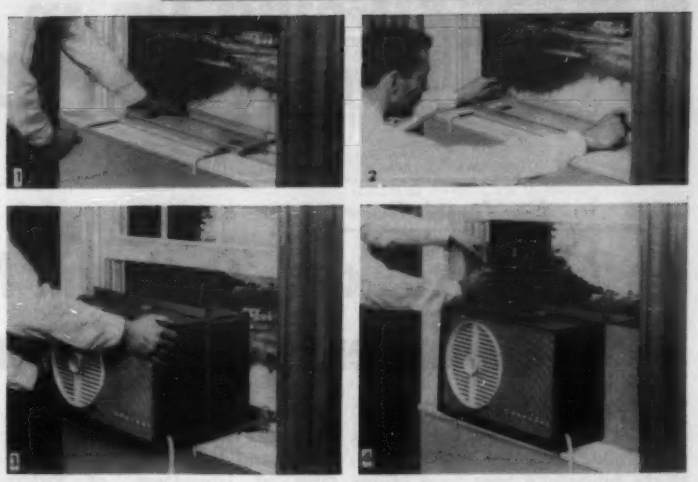
Also included is a sponge gasket that is compressed in the space between the upper and lower sash to prevent any air leakage in that area.

Because of the completely different construction of the casement window, a separate Safety Fast installation was devised for the Fedders Minute Mount Casement Portable. This unit will fit into a panel as small as 10⅝ in. by 14⅛ in.

With the glass of one panel removed, the air conditioner is slid into the opening until the rubber seal on the mounting flange comes in contact with the sides of the opening.

By pressing on each of the lower corners of the unit, two levers will engage the bottom of the metal casement. At the top, two slide bars, pushed toward the outer edges of the air conditioner, secure the air conditioner there.

Since all the rubber sealing gaskets are an integral part of the Fedders unit, the casement installation is complete.



INSTALLATION of Fedders portable "Minute Mount" air conditioner is claimed to be simple. By eliminating complicated accessory kits in the new "Safety Fast" mounting system and need for any tools, the unit can be installed in just a few minutes. Left top shows mounting baseplate in position on window sill. Right top shows two clamps pushed firmly against the edge of the sill and held fast by friction grips. Two upright screws level the plate. Below left shows room unit placed on baseplate. Below right shows how side sealing panels are slid into channels on each side of the unit. A slotted rubber gasket is slipped over top angle bracket to seal off outside air.

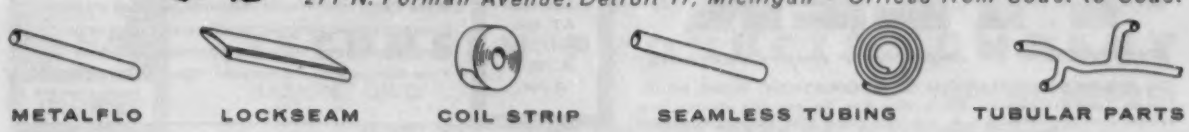
"I know this is irregular, but he wants to make sure the air conditioner is made with genuine H & H parts before he buys it."

Expect the BEST brass and copper products from

H & H TUBE AND MANUFACTURING CO.

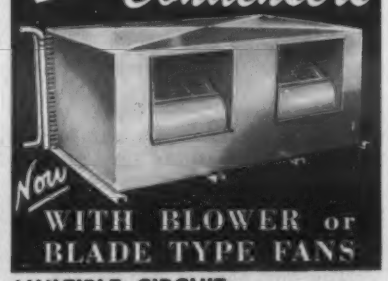
271 N. Forman Avenue, Detroit 17, Michigan • Offices from Coast to Coast

If you are not now getting the quality, the service and the *savings* a top notch tubing source can give you, why not do something about it? H & H Tube and Manufacturing Company has the experience and the know how to give you *exactly* the grain size and temper you specify—and a big inventory of dies can save you time and money. So why wait? A phone call *right now* to Vinewood 2-3600 collect, can start you on your way.



METALFLO LOCKSEAM COIL STRIP SEAMLESS TUBING TUBULAR PARTS

WITT Air Cooled Condensers



Now WITH BLOWER or BLADE TYPE FANS

MULTIPLE CIRCUIT AT NO ADDITIONAL COST

Positive Automatic Control System For Winter Operation

The most complete air cooled condenser line offered. BLADE FAN TYPE in capacities from 2 to 40 ton for commercial and heavy industrial installations. WHEEL TYPE BLOWERS from 2½ to 15 ton for residence, hospital or any place where utmost in quietness is necessary.

Where water supply is taxed or limited, or water corrodes water cooled condensers, the sensible answer to your air conditioning or refrigeration condensing problem is a WITT AIR COOLED CONDENSER.

Same units applicable for indoor or outdoor installation. Outstanding results and the price is unbelievably low.

A Few Territories Open

Write for Data Sheet

WITT Coils — A. H. WITT CO., Inc. 940 N. Sycamore Ave. Los Angeles 38, Calif.

8,000 Sq. Ft. In 21 Rooms

Hospital Provides 'Optimum Nutrition at Minimum Expense' In Refrigerated Space

BUFFALO — Liberal provision of refrigerated space is a prominent feature of Buffalo State hospital's new food storehouse and bakery building.

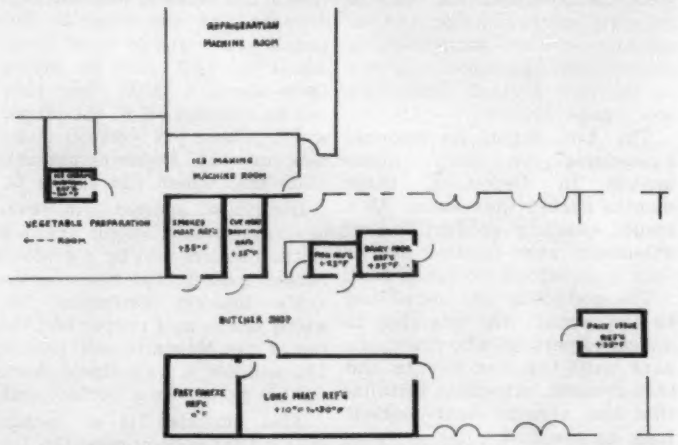
Almost 8,000 sq. ft. of refrigerated storage space, broken up into 21 separate rooms, allows the hospital to provide "optimum nutrition at a minimum of expense," for more than 4,000 patients, it was reported.

The Mental Hygiene Dept., the local hospital administration staff, and the Div. of Architecture of the Dept. of Public Works pooled talent and experience to plan a building which would enable the hospital to avail itself of the efficiencies of supermarket techniques.

Previous food storage facilities were outmoded and inadequate in size. Resultant inefficiency meant high operating costs.

Expenditure Already Paying For Itself

To eliminate this wastefulness, a $1,400,000 expenditure in building costs was called for. It is already paying dividends in terms of patient well-being and kitchen economy, it was pointed out. Planned quantity food buying and adequate and appropriate movement of food were made possible by the new food storage warehouse and bakery.



FIRST FLOOR PLAN.

All told, the building provides 70,000 sq. ft. of floor space. It is a three-story building with the bakery occupying the first and second floors of one wing. The pastry room, bread room, and bread cooling room are on the first floor. Flour storage, fermentation, mixing, and blending is done on the second floor.

Temperatures Range From -20 to 35°

Of the unit's 21 refrigerated rooms, 11 are in the basement, eight on the first floor, and two on the second. Temperatures range from -20° F. to 35° F. Planning placed these cold rooms convenient to food processing rooms, receiving and issuing areas, the bakery, butcher shop, and ice cream making room.

Each room is equipped with a Dunham-Bush evaporator and its own temperature control. Three quarters of them have automatic defrost, about equally divided between hot gas and electric.

All but three of the "Freon-12" compressors serving the installation are located in a machine room at grade level. The other three are located on upper floors. Cooling towers conserve condensing water.

"While each room is presently designated for a specific purpose fitting into current operating procedure (see table), provision has been made to adapt the arrangement to meet future requirements," it was pointed out.

Temperatures Can Be Varied

"The unit control system, for example, enables temperatures to be varied—inasmuch as today's economy may be tomorrow's inefficiency. It is altogether conceivable that the 10° F. room now used for long storage of meat may one day be more useful as a 30° F. room for boneless meat storage.

"At present, the plan is to buy fresh vegetables, store and process them before delivery to the kitchen. In the future, it may be advisable to purchase commercially processed frozen vegetables and store them for longer periods of time. Today's

(Concluded on next page)

Now take a look at store layout . . . at stock flow and handling costs . . . at merchandising methods . . . at competition!

SHORT-CUT TO PROFITS

TYLER Air Skreen TRADEMARK
SALES & STORAGE COOLER

a wide-open, self-service sales display—and all the storage you need—in one space-saving combination!

Move incoming stock direct to *Air-Skreen** cooler . . . then load wide-open sales display *from inside the cooler!* End backroom confusion . . . set up meat, produce, dairy and other perishable departments on independent stock flow basis. Stop hand-trucking in the sales area . . . quit interfering with customers.

Cut horsepower and operating costs too . . . almost in half! Avoid display stock-outs . . . keep displays loaded at peak periods. Cut handling costs.

Get the full story! Let Tyler help you adapt *Air-Skreen* to meet your requirements . . . to give you a new *short-cut* to better volume, faster turnover, and a bigger profit margin!

*Trademark

OPEN, EASY-REACH, vertical display in cooler front.

- wide-open, vertical, mass display . . . long as you want. Lineal shelf capacity four times usual display case.
- shelves adjustable, height and slope.
- all the storage capacity you need . . . right at point of sale.
- fast, rear-loading from within cooler.
- dependable refrigeration . . . one Balanced System for storage and display.
- positive, controlled cold air "*Air-Skreen*" protects perishables . . . a new exclusive, patent-applied-for Tyler principle . . . result of years of research.
- new merchandising opportunities for super, bantam, or neighborhood store.

REAR-LOADING—INSIDE COOLER. No trucks on sales floor.

STORE-WIDE VISIBILITY . . . huge-capacity display . . . gets attention.

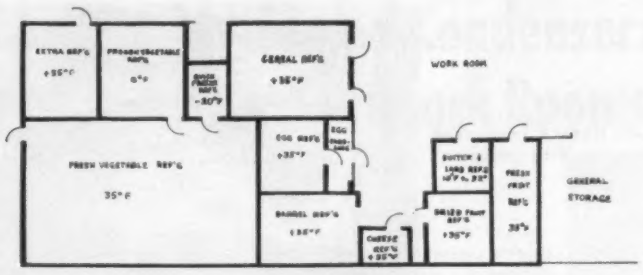
TYLER

PIONEER of important improvements

TYLER REFRIGERATION CORPORATION, Niles, Mich.
Canada: Tyler Refrigerators, 732 Spadina Ave., Toronto, Ont. (Export: Tyler Refrigeration International, C. A., Apartado Postal 9262, Caracas, Venezuela)

SEE US AT SMI BOOTHS A-700—A-704

A few Tyler Franchises are available. Inquiries are invited from aggressive commercial refrigerator sales organizations. Write Sales Manager, Wholesale Accounts Div., Tyler Refrigeration Corporation, Niles, Michigan.



BASEMENT PLAN.

STAGGERED joints used in three-layer construction of small freezer.

How Space Is Used

Description of Room	Operating Temp.	Dimensions	Insulation Thickness
Basement			
1. Extra refrigeration	35°F.	17'x22'	4"
2. Frozen vegetables	0°F.	21'x23'	6"
3. Quick freeze	-20°F.	10½'x13½'	8"
4. Cereal refrigeration	35°F.	30'x23'	4"
5. Egg refrigeration	35°F.	18'x16'	4"
6. Barrel refrigeration	35°F.	17'x24½'	4"
7. Cheese refrigeration	35°F.	12'x8'	4"
8. Dried fruit refrigeration	35°F.	17'x16'	4"
9. Butter, lard refrigeration	10°-32°F.	12½'x14'	6"
10. Fresh fruit refrigeration	35°F.	11'x30'	4"
11. Fresh vegetable refrigeration	35°F.	35½'x58'	4"
First Floor			
12. Daily issue refrigeration	35°F.	15½'x10'	4"
13. Long meat refrigeration	10°-30°F.	43½'x19'	6"
14. Fast freeze refrigeration	0°F.	17'x19'	6"
15. Dairy Refrigeration	35°F.	13½'x10'	4"
16. Fish refrigeration	23°F.	11½'x8'	4"
17. Cut meat daily issue	35°F.	9½'x20'	4"
18. Smoked meat refrigeration	35°F.	13'x20'	4"
19. Ice cream hardening refrigeration	-20°F.	10'x7½'	8"
Second Floor			
20. Blanket refrigeration (garments)	20°F.	17'x19'	4"
21. Ingredient refrigeration	35°F.	10'x14'	4"

Senate OKs Placing Packers' Products Partially Under FTC

WASHINGTON, D. C.—A bill that would let the Federal Trade Commission share jurisdiction over the wholesaling and retailing of meat and other packing products after they leave the packing plants and enter interstate commerce has been approved by the U. S. Senate.

At present, the U. S. Department of Agriculture has exclusive jurisdiction over the meat packing industry. Food chains who owned packing plants have successfully claimed immunity to FTC actions on the ground that they were packers under the jurisdiction of USDA.

A similar measure to close this loophole has been approved by House Agricultural Committee and is awaiting final action by the House, it was pointed out.

(Concluded from preceding page)

daily issue procedure is under study and may give way to a time-saving method."

General contractor for the Buffalo food storage unit was the Cowper Co. of Buffalo.

The building is a steel frame structure with reinforced concrete foundation walls. It has solid brick exterior walls with an interior finish of enamel faced tile.

Ceilings are of concrete floor arch construction, installed as slabs. Non-refrigerated walls are of standard cement block faced with tile, and, in all refrigerated spaces, there are solid brick partitions.

'Styrofoam' Used

"Syrofoam," the Dow Chemical Co.'s low temperature insulation, was used throughout.

Boards of Styrofoam were bonded directly to the walls of the cold rooms with Portland cement mortar.

The 160,000 board feet of Styrofoam was lapped in two or three layers, depending upon temperatures to be maintained in the room. Layers were skewered and bonded to one another.

On the ceilings, the first layer of Styrofoam was nailed to wooden nailers. A vapor barrier paper was used above this first layer, and the second ceiling layer was adhered with a mineral cement.

Floor Is Sub-Slab, Insulation, Slab

The floor consists of poured concrete sub-slab, appropriate number of layers of Styrofoam, and a reinforced concrete wearing slab.

Refrigeration insulation contractor for the hospital food storehouse and bakery building was The Jewett Refrigerator Co., Inc. of Buffalo. Jewett both engineered and constructed the cold rooms.

Looking for a Business to Buy . . . ?

Check the Business Opportunities Section in the classified advertising columns.

No. 1 in a series on better compressor servicing

Herman Hermetic Hints

ON

Proper Compressor Identification

SHIFT IDENTIFICATION
Single dot indicates compressor made during first shift
SERIAL NUMBER
CSA TAG SLOT
PLANT IDENTIFICATION
Tecumseh Products Symbol (TP), Marion (M)* Manufacturing Plant
*Left blank if manufactured at Tecumseh Plant
MOTOR MANUFACTURER
Initial letter used to identify manufacturer
BILL OF MATERIAL NO.
Describes the compressor for us — Necessary (among other things) to determine proper electrical components
MODEL NO.
THREE PHASE
This space left blank if model is single phase
J O 2 1 2 - 1 1 0 W
D. G20, 58
183697
JB200
V220/208
HP2
PH3
TPM
CY 50/60
AMP.-A9.9
W7.0
DATE OF MANUFACTURE
Coded A-M for Jan-Dec (omitting I) including month, day, and year
VOLTAGE
CURRENT
This model draws 9.9 amps under air-cooled (A) application, 7.0 amps for water-cooled (W) application.
MODEL JB200
CYCLE
This compressor operates on 50 or 60 cycle current
HORSEPOWER RATING

Tecumseh compressor serial plates are as valuable as fingerprints in indentifying your particular model. These embossed plates, which you will find spot-welded to the shell of every Tecumseh and Marion compressor, carry all information pertinent to the compressor. This most recent serial plate revision (effective with 1958 production) emphasizes legibility and also makes provision by way of the slot at the right, for attachment of the CSA (Canadian Standards Association) tag where required. Know your serial plate: With this information your Tecumseh wholesaler can supply you with exact replacement parts or the proper replacement compressor.

TECUMSEH

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TECUMSEH PRODUCTS COMPANY

MARION, OHIO — TECUMSEH, MICHIGAN

EXPORT DEPT: P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Boasts 'Largest' Frozen Food Dept. In Area

Chilled Air Curtain In Market's Dairy Dept. Refrigerates Self-Serve Shelves, Draws Curious Customers, 'Bars' Doors

DENVER—A completely open dairy department in which customers reach through a falling curtain of chilled air to buy milk, eggs, cheese, butter, and associated products is a feature of the new King "Soopers" supermarket here.

The market also boasts the largest frozen food department in the Denver area with 320 lineal feet of cases. A 20% increase in display space is claimed through the use of integral back-to-back low temperature cases manufactured by Weber Showcase & Fixture Co.

Located in the left rear corner of the store, the dairy department is 30 ft. long. It consists of four tiers of stainless steel shelving, from knee to shoulder height. An extended canopy above bears paintings of dairy products, including groups of cheese, types of butter, racks of milk packages, etc., in colors.

"GLASSLESS" dairy department in King "Soopers" in Denver.

A continuous row of coils behind the canopy and directly above the top shelf, spills a steady flow of chilled air down over the refrigerated self-serve shelves. The air curtain extends out around 6 in. in front of the shelving space to hold temperatures at an even level throughout the vertical area of the shelving.

Falling slowly, the chilled air replaces at least 12 glass doors, according to Lloyd King, progressive Denver supermarket operator who has built up one of Denver's largest food chains in the past ten years. Six tons of refrigeration handle the load.

Advantages claimed for the "curtain of cold air" installation include much more rapid stocking of shelves from the front, elimination of swinging doors which block traffic in the aisle, better visibility of all of the dairy products, and, finally, a "curiosity feature" which has been heavily played.

The huge frozen food department, in the right center of the store, incorporates four 40-ft. back-to-back units running from front to rear and four single case units facing them across an 8-ft. aisle on either side.

BACK-TO-BACK frozen food cases in King "Soopers."

By using a common flue and refrigeration system, the back-to-back cases save floor space. Food displays are 16¼ in. deep, giving 21% more contact space than would be provided in single display cases, he claimed.

The back-to-back cases are colored pink and the flanking cases apple green.

A basement walk-in freezer will handle an entire carload of frozen foods, King said.

To Take Long Look Ahead At NARGUS June Meeting

CHICAGO — Food industries exhibition at the 59th annual convention of National Association of Retail Grocers to be held at the Coliseum in New York City, June 8-12 will be open Sunday (June 8) from 10:30 a.m. to 5 p.m. and Monday, Tuesday, and Wednesday from 12:30 to 5 p.m., NARGUS announced.

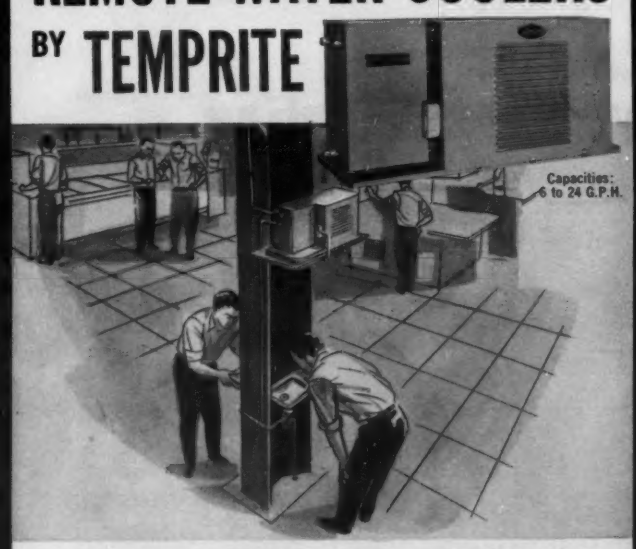
No business meetings will be held the last three afternoons.

Divided convention sessions from 9:30 to 11:30 a.m. will offer a selection of three different topics each day, it was explained, ranging from successful store financing to promoting frozen foods.

Presidents of six food trade associations have been asked to take "A Long Look Ahead for Food Distribution" at the opening session Sunday afternoon.

broader applications bigger profits!

WHEN YOU CUSTOM-ENGINEER REMOTE WATER COOLERS BY TEMPRITE



Economical, practical, Temprite Remote Water Coolers save valuable floor space, protect cooler from damage by installing on overhead, out-of-the-way wall brackets. Connect to multiple bubblers, if desired, in hot-heavy work areas.

For restaurant fast cold water service. Single unit serves extra stations, saves waitress' steps, helps boost turnover.

"Wall-Remote" models install within the wall . . . and other locations . . . to accommodate built-in applications.

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☐ Send me data on Temprite Remote Coolers
☐ I am interested in selling Temprite Coolers
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NEW EDWARDS airvec

The Fanless .. Noiseless .. Air-Cooled Condenser

NO WIRING, NO NOISE, NO OPERATING EXPENSE, NO MOTORS, NO MAINTENANCE.

AIRVEC -a new principle in air conditioning. So new, so revolutionary that all other condenser types are made obsolete. Manufactured in 2, 3, 5, and 7½ ton basic coil sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons. For supermarket installations, units will be circuited for fractional tonnages as required. Head pressure control also available. WRITE AIRVEC DEPT., EDWARDS ENGINEERING CORP. Manufacturers Agents Inquiries Invited.

DEVELOPED BY MANUFACTURERS OF INDUSTRY'S MOST WIDELY USED WATER-COOLED CONDENSERS.

CO-AXIAL FREON CONDENSERS

with these advantages:

- COST REDUCED 30% to 40%
- CONDENSER WATER REDUCED 35%
- Refrigerant Charge Reduced
- Stabilizes Capillary Performance
- Smaller Cooling Towers Required
- Shipping Weight Reduced
- Many Shapes and Sizes Available
- Sea Water Models Available

EDWARDS ENGINEERING CORP.
103 ALEXANDER AVENUE • POMPTON PLAINS, NEW JERSEY

Years Ahead in Design WITH "KING SIZE" SAVING TODAY . . . THE LA CROSSE SENIOR KUBE KING

Top La Crosse quality in design, economical operation and big Kube capacity! SAVE . . . from purchase price through years and years of convenient service with the Senior Kube King.

• Approx. 3200 crystal clean Kubes (no holes) per 24 hours. • 110 lbs. storage • 6 qts. water per freezing cycle • Automatic production start and stop • No pumps • No float valves • Compact—less than 6 sq. ft. of floor space—fits under bar.

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3000 LOSEY BOULEVARD SOUTH, LA CROSSE, WISCONSIN

EXPORT OFFICE: 125 BROAD ST., NEW YORK, CABLE: EXIMPORT

A. H. BROMANN JR. INC. - REFRIGERATION

Custom Quality Walk-in that Includes NEW MONEY SAVING Construction Methods

Over 60 years of experience has gone into developing new construction methods that result in savings on list price. Some of the custom features include: button nail design . . . expandables in 26" multiples . . . full 3⅝" fiber glass insulation . . . ¾" kiln dried fir . . . new sectional locking devices . . . clamp nail frame construction. . . .

WRITE TO—A. H. BROMANN JR. INC.—Schiller Park, Illinois

Mounts Air-Cooled Condensers Inside and Uses Warm Air To Heat Back Rooms of Supermarket

RAVENNA, Ohio—Installing air-cooled condensers indoors and using the heat from them to heat its back rooms in winter has proved advantageous for the Acme supermarket here.

In fact the installation has worked so well, even during last winter's -14° F. weather, that the Fred W. Albrecht Grocery Co., owner and operator of the Acme Stores in the Akron area, has installed three more Kramer-Trenton "Unicons" indoors at its Norton Center store. It further plans to install others in three stores it will open this year.

The installation was made by the Akron branch of Hattenbach Co., C. V. Hill distributor in Cleveland.

According to Charles and Ray Schlegel, father and son management team at the Akron branch, the indoor Unicon application made possible many unique advantages.

They ventilate the compressor rooms in summer and heat them in winter. The three Unicons are readily accessible for maintenance. There is no need for winter controls, additional refrigerant charge, or over sized receivers. Refrigerant lines are of extremely short run, the Schlegels say.

Air inlet louvers are located in one of the building's side walls, while discharge louvers are in the rear store wall. A sheet metal duct connects the Unicon with the outdoor discharge louver. A second louver in the duct itself diverts air into the back room for heating. Changeover from winter to summer operation is accomplished by repositioning one control lever.

One backroom of the Acme Ravenna store is approximately 125 ft. long by 23 ft. wide and 15 ft. high. It was comfortably warm during the record -14° F. weather last winter, Schlegel said.

Schlegel reported that he has been selling Unicons to the Acme chain since 1952. He has installed refrigeration equipment in all of the chain's 35 supermarkets in Akron and vicinity.

The Unicons were supplied by Davey Sales Co., Akron.

HEAT FROM UNICON air-cooled condenser installed inside Acme supermarket at Ravenna, Ohio warms back room. Duct runs from Unicon at right to discharge louver in rear wall. During winter, heat is diverted to interior and provides only source of warmth in backroom.

OPERATING CHANGEOVER control to switch from summer to winter operation is Charles Schegel of Hattenbach Co., installing contractor. Above him are Jim Petty of Davey Sales Co., (l.) and Raymond Schlegel.

4 New Distributors Join with NCRSA

PHILADELPHIA—Four new distributors have joined the National Commercial Refrigerator Sales Association, the group reported.

Beaulieu Refrigeration Co., Lafayette, La.; Hill Refrigeration Corp., Richmond, Va.; Commercial Refrigeration Co., Baton Rouge, La.; and Reliable Refrigeration, Ltd., Toronto, Ont., Can. are the new members, bringing to 21 those enrolled this year, NCRSA said.

SEND FOR REPRINTS
Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.
Only 40¢ each.
For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Your Customers' Best Buy. . .
(and yours, too!)
IDEAL
Speed-Freeze
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BEVERAGE COOLERS unexcelled storage capacity with Ice Cube Makers
OUTSTANDING SECTIONAL METAL WALK-IN COOLERS
IDEAL
COOLER CORPORATION
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246 Lineal Feet of McCray Merchandisers combine colorful beauty with volume sales power

Butner's "Store of Tomorrow" clicks from the start with McCray

Frozen Food: High capacity and easy shopping for high volume sales of profitable merchandise.

Meat: Top display of meats at their best. Rear storage doors for fast restocking.

Dairy: It's fabulous the way these open-shelf merchandisers move dairy products in volume.

Produce: Long, low lines match the modern design of the store. Easy to shop—easy to stock.

In every department of this beautifully planned Butner Super Market in Topeka, Kansas, you'll find McCray Merchandisers boosting sales and complementing the "Store of Tomorrow" design. Colors are keyed to the scheme of the store and McCray's uncluttered "look-ahead" styling will keep these cases looking new for years to come.

Send coupon below. If your territory is open, we'll supply franchise information on McCray's profit-making line-up.

McCray KOLDFLO

67 Years of Leadership in Building Dependable Commercial Refrigerators

McCray Refrigerator Co., Inc.
501 McCray Court, Kendallville, Indiana
I'm interested in the new profit-making McCray line. Please let me know if there's a franchise available in my area.
NAME_____
BUSINESS_____
ADDRESS_____
CITY_____ STATE_____

ONE REFRIGERATOR WITH THE VARIETY OF TWO!

PROBLEM: Greater variety and adequate capacity

SOLUTION: Warren's new *Twin-Isle** Merchandiser...

Warren's TWIN-ISLE is a revolutionary new merchandiser for displaying ice cream and frozen foods: one refrigerator offering two-side shopping from **two** compartments, each with five frozen-food packs across; 57½" wide over-all. Better merchandising, with twice the variety of a conventional low-temperature display case! What a liberal capacity, too! 2,316 frozen-food packs or 2,160 pints of ice cream. Most economical possible use of floor space and horsepower! No further need for expensive back-to-back case line-ups.

TWIN-ISLE Merchandisers feature Diamond Jubilee styling... COLORAMICS® Bands optional at no extra cost. **Four-shelf merchandising canopies** are offered for further utilization of floor space.

*Patent Pending

Warren Refrigerators

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THE MASTER SERVICE MANUALS - - -

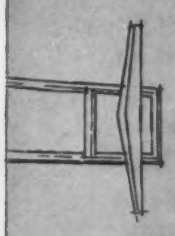
— — — and other books of the Refrigeration Library are depended upon as textbooks in trade schools from coast to coast.

BUSINESS NEWS PUBLISHING CO., DETROIT

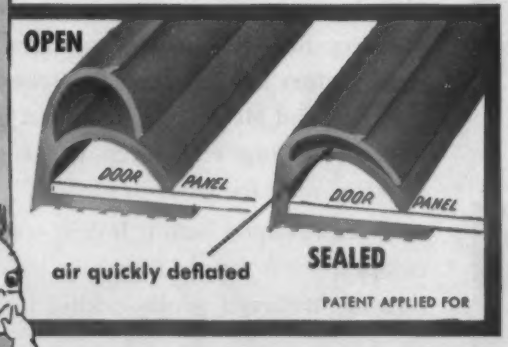
a light touch* AND IT'S SEALED!

Jarrow's Safeseal Gasket...

developed for the new safety-type spring and magnetic refrigerator and freezer doors.



* as low as 4 lbs. pressure



Positive seal is assured with as low as **4 lbs. pressure** because "Safeseal's" soft-acting rubber is sensitive to the lightest touch.

"Safeseal" can be made to your exact requirements for any low-tension spring or magnetic door, based on this patented design. Send us blueprints of your doors.

Jarrow experienced engineers can help solve your every gasket problem. No cost or obligation for this service. Write today.

JARROW PRODUCTS INC

Almost a Third of a Century of Gasket Experience

1238-50 W. FULLERTON AVE. • CHICAGO 14, ILL.

What Was New

At the Restaurant Show

(Below are just a few of the new items that were on display at the National Restaurant Show in Chicago recently.)

LA CROSSE Cooler Corp. introduced a new 550-lb. per day capacity ice flaking machine at the Restaurant Show in Chicago. Lozsitsa Carrol demonstrates the unit, which features a 280-lb. capacity storage bin with stainless steel slide-away door and front rail. It is powered by a ½-hp. air-cooled condensing unit.

ROSS TEMP flake ice machine that makes ice directly on evaporator itself rather than on outer shell catches eye of Jamie Hale. Unit, made by Ross Temp, Inc. of Chicago, is designed with only one moving part for easy service.

TWO MODELS from Stiles Karlsonite Corp.'s new line of water conditioners are held by Jim Stiles. The larger is for cooling towers and food market jobs while the smaller can be used in homes and restaurants.

INDICATING CUBE making mechanism of Cold Corp. of America's new "Cube Freeze-Kleer Kube" automatic ice cube machine is Ben Shear. Its aerating and water handling method provides dependable operation even with water of high mineral content, he says.

Teamwork Makes More Money For COLDIN DEALERS

No other manufacturer of commercial refrigeration can offer the important advantages that come with a Coldin Franchise. You have the greatest line to choose from . . . world's finest quality plus close, personal co-operation. Earns dollars, makes sense too! Inquire!

Coldin

Your Key To Better Refrigeration

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BTC Names Reburn To Head Its Research

NEW MILFORD, Pa. Charles E. Reburn has been placed in charge of research and development for the Refrigeration Div. of Brewer-Titchener Corp., it was announced by James H. Greene, president.

The division manufactures vendors and coolers for all types of cold bottle sales.

Reburn spent seven years, from 1945 through 1952, as chief engineer of Pepsi-Cola Co., being responsible for the development of equipment required for the manufacture, distribution, and merchandising of Pepsi-Cola. He was vice president of engineering for Selmix Dispensers, Inc. from 1952 until 1954, and manager of engineering and chief engineer for Glascock Brothers Mfg. Co. from 1954 until now.

Gloekler

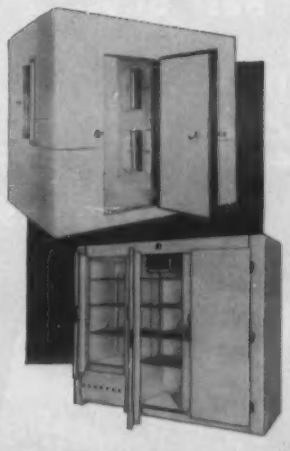
A FAMOUS NAME IN COMMERCIAL REFRIGERATION FOR OVER 50 YEARS!

As a pioneer designer and builder of commercial refrigerators, with more than 50 years of experience, Gloekler offers these important advantages:

1. Your customers get the finest construction materials and design plus the all-important benefits the industry's most advanced skills and facilities can offer.
2. Too, as a Gloekler dealer you are protected on every transaction in your area, and get conscientious factory co-operation in maintaining good customer relations.

WALK-IN & REACH-IN

Standard and Custom Designs for Every Need!



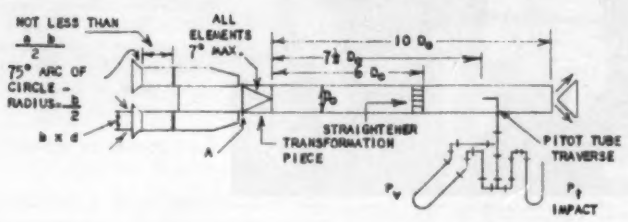
COMPETITIVELY PRICED BACKED BY WRITTEN WARRANTY

Gloekler

P.O. Box 1154-AC

ERIE, PA.

Air Distribution Requirements In Year-Round Air Conditioning

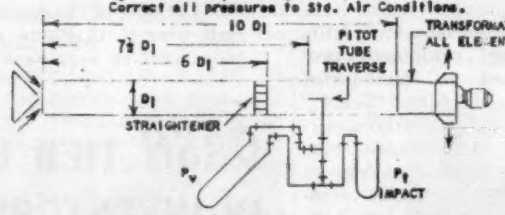


CENTRIFUGAL FANS - SINGLE OR DOUBLE INLET EQUIPPED WITH INLET BOXES

a Long Side of Inlet Duct.
b Short Side of Inlet Duct.

OUTLET DUCT: Total Pressure, p_t, by Impact tube.
Velocity pressure, p_v; Differential reading between Impact tube and static tube.

FAN OUTLET: P_v; Correct p_v to P_v; the velocity pressure corresponding to Fan Outlet Area, A.
P_t; Add to p_t the calculated duct friction and straightener loss.
P_s; Subtract P_v from P_t.
Correct all pressures to Std. Air Conditions.



CENTRIFUGAL FANS - RADIAL DELIVERY

DUCT: Total pressure, p_t, by Impact tube.
Velocity pressure, p_v, Differential reading between Impact tube and static tube.

FAN OUTLET: P_v; Correct p_v to P_v; the velocity pressure corresponding to area of wheel diameter.
P_t; to p_t add P_v and calculated duct friction.
P_s; Subtract P_v from P_t.
Correct all pressures to Std. Air Conditions.

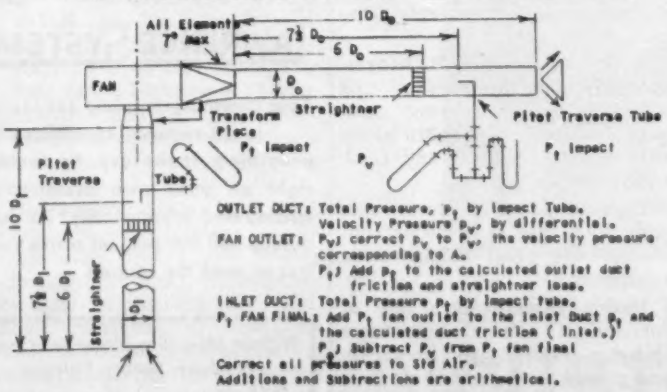
All additions and subtractions mentioned above are arithmetical.

Fig. 18

FOR CENTRIFUGAL FANS - SINGLE OR DOUBLE INLET WITH DISCHARGE DUCT

DUCT: Total Pressure, P_t by Impact Tube
Velocity Pressure, P_v; Differential reading between Impact Tube and Static Tube.

FAN OUTLET: P_v- Correct p_v to P_v, the velocity Pressure corresponding to Fan Outlet Area, A_o.
P_t- Add to p_t the calculated duct friction and straightner loss.
P_s- Subtract P_v from P_t.
Correct all pressures to Std Air Conditions.
Additions and Subtractions are arithmetical.
No inlet Pressure Readings to be taken. No alteration to designed inlet.



OUTLET DUCT: Total Pressure, P_t by Impact Tube.
Velocity Pressure p_v, by differential.

FAN OUTLET: P_v; correct p_v to P_v, the velocity pressure corresponding to A_o.
P_t; Add p_t to the calculated outlet duct friction and straightner loss.

INLET DUCT: Total Pressure p_t by Impact tube.

P_t FAN FINAL: Add P_t fan outlet to the inlet Duct p_t and the calculated duct friction (Inlet.)
P_s; Subtract P_v from P_t fan final

Correct all pressures to Std Air.
Additions and Subtractions are arithmetical.

Fig. 19

Part 2—Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

First, a review of the procedures used by most reputable manufacturers in their laboratories to establish their values, thereby realizing their possible coordination in making field observations and application. In the following there will be much use of mathematical calculations with the necessity for use of a standard nomenclature with the symbols involved; thus it is necessary to establish the nomenclature, as well as formulae.

General symbols to be used are listed below:

D. This shall always designate the diameter of the Wheel in feet.

D_o. This shall always hereafter designate the diameter of the Outlet Duct in feet.

D_i. This shall always designate the inlet diameter of the Duct in feet.

A_o. This shall always designate the area of the Outlet Duct in feet square.

A_i. This will be the area of the Inlet Duct in feet square.

A. Will be the Fan outlet area in feet square.

Q. Shall represent Cubic Feet per Minute.

d_w. Will designate in Pounds per cubic feet, the Density of water at room temperature.

$(hp)_t$. Will indicate Air Horsepower, based on total pressure.

shp. Shall represent Horsepower input at the fan shaft.

et. Will be Mechanical Efficiency, based on total pressure.

es. Will be the Static Efficiency based on static pressure.

PRESSURE SYMBOLS TO BE USED ARE:

(Duct)

pt. Will indicate Total pressure in inches of water column.

pv. Will indicate Velocity pressure in inches of water column.

ps. Will represent Static pressure in inches of water column.

pf. Will represent estimated Friction pressure in inches of water column.

pc. Shall be the Friction pressure of the air straightner (which will be observed from Figs. 18 and 19) in inches of water column and is estimated.

v. Will indicate the Velocity in feet per minute.

PRESSURE SYMBOLS TO BE USED ARE:

(Fan)

P_t. Total Pressure in inches of water column.

P_v. Velocity Pressure in inches of water column.

P_s. Static Pressure in inches of water column.

V. Velocity in feet per minute.

AIR SYMBOLS TO BE USED ARE:

P'_v. Will represent the Actual Vapor Pressure in pounds per square inch.

P_w. Will be the Pressure of saturated vapor at wet bulb temperature involved in pounds per square inch.

P_a. Barometric Pressure in pounds per square inch will be expressed this way.

t_d. This will be Dry Bulb Temperature in degree F.

t_w. This will be Wet Bulb Temperature in degree F.

d. This will be Density in pounds per cubic foot of Air.

d_a. This will represent the Density of Standard Air (0.75 pound per cubic foot).

d_i. Density of air at the inlet connection in pounds per cubic foot will be shown this way.

d_p. Will be the Density of Air at the point of pressure measurement in pounds per cubic foot.

R. Will be the Gas Constant for Air, which equals 0.370 (for pressure in pounds per square inch).

T_a. Will be the Dry Bulb Temperature in degrees Absolute which equals $459.6 + t_d$.

The formulae involved in the use of these symbols and nomenclature to embody the mathematical calculations for the values sought are:

FOR AIR:

(a) Vapor Pressure.

$$P'_v = P_w - \left[\frac{P_a}{30} \times \left[\frac{t_d - t_w}{90}\right]\right]$$

(b) Air Density.

$$d = \frac{P_a - 0.58\ P'_v}{R\ T_d}$$

(c) Velocity.

$$V = 60\sqrt{\frac{2gh \times d_w}{12\ d}} = 1096.2\sqrt{\frac{P_v}{d}}$$

(d) Cubic Feet per Minute.

$$Q = AV$$

FOR AIR HORSEPOWER:

(Output)

(a) Total Mechanical.

$$(hp)_t = Q \times P_t \times .0001573$$

SHAFT HORSEPOWER:

(Input)

(a) By Dynamometer.

$$shp = \text{Beam Wght. lbs.} \times \text{r.p.m.} \times K$$

$$\text{Where } K = \frac{2\pi \times L \text{ inches}}{33000 \times 12}$$

L = Length of arm from shaft center to knife edge.

(b) By Direct Current Motor.

$$shp = \frac{\text{Amps} \times \text{Volts} \times \text{Efficiency}}{746}$$

(c) By Alternating Current Motor—3 Phase.

$$shp = \frac{\sqrt{3} \times \text{Amps} \times \text{Volts} \times \text{Eff.} \times \text{Power F.}}{746}$$

FOR EFFICIENCY:

(a) Mechanical Efficiency. (Total.)

$$et = \frac{(hp)_t}{shp}$$

(b) Static Efficiency.

$$es = et \frac{P_s}{P_t}$$

(To Be Continued)

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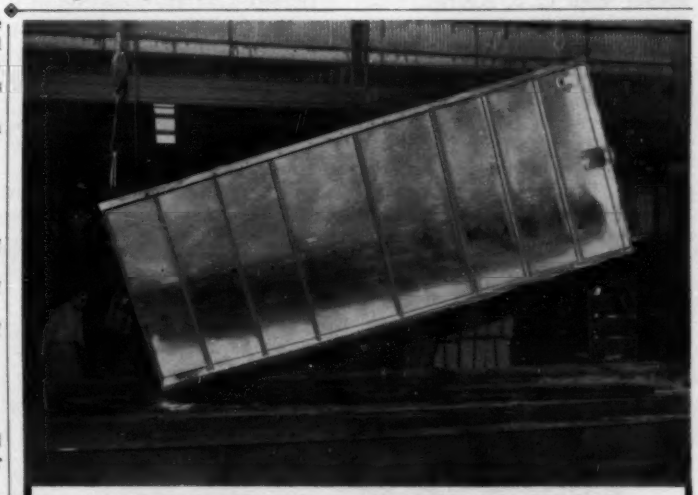

All Havens' tower casings, from the largest to the smallest models, are double-dipped after fabrication and before assembly. 100 Ton "V" series water basin is shown above after removal from the galvanizing kettle.

GALVANIZING THAT ADDS YEARS OF SERVICE LIFE TO

Havens Towers

Rigorous service and field tests adequately prove that heavy zinc coatings provide protection against rust for many, many years. Havens' specialized galvanizing process utilizes acid dipping, zinc ammonium chloride pre-flux and unhurried hot dip. The dip kettle is 50 inches wide, 60 inches deep and 25 feet in length. A quarter of a million pounds of molten zinc are maintained at 840° F. Material being galvanized is left in the dip until temperature is equalized. Over 2 ounces of molten zinc are applied to every square foot exposed, equal to a thickness of .0036 inches.

From pickling and pre-fluxing, through the galvanizing, Havens' Tower casings are adequately prepared to combat rust and corrosion.

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Australian Firms 'Show Their Wares' to Packed House At First Air Conditioning, Refrigeration Exhibition

This is the second of a two-part article describing Australian air conditioning and refrigeration companies and their personnel and exhibits at the first Australian Institute of Refrigeration convention and exhibition held earlier in May.

Hallstrom's Pty. Ltd. filled its exhibition space with a comprehensive line of its current refrigerator models, as well as a series of "museum pieces"—models made by this pioneering concern during the 28 years it has produced in its Willoughby plant.

Associate company, Polystrom Pty. Ltd., manufacturer of plastic used in Hallstrom and other Australian refrigerators, also had an exhibit.

Hallstrom Speaks

Sir Edward Hallstrom, governing director of both firms, spoke at the convention on the subject: "Refrigeration In Australia."

John Hallstrom also got together with C. J. Asprey, Hallstrom's general manager, to accommodate exhibit viewers.

Without a doubt Sir Edward Hallstrom and his associates have placed more home refrigerators in Australian homes than any other producer in all history. Total: at least 1,120,000 (much more than one per inhabitant).

Their low-price home refrigerators operate efficiently on the absorption principle.

Licensee of Tecumseh Products Co. is Kirby Refrigeration Units Pty., Ltd. of Camperdown, N.S.W. which fabricates compressors, condensing units, evaporators, and relays for the Australian refrigeration industry.

Chieftain of the firm recently was profiled in a supplement published in the Sydney *Sun*, entitled "The James N. Kirby Story."

That article marked the rise of the Kirby company from a modest three-man motorcycle-engine repair shop in 1924 to its present vastness in the Australian refrigeration industry.

Now Kirby has completed arrangements with Philco Corp. to manufacture and distribute in the Commonwealth a complete line of Philco products.

Many Kirby executives attended the Australian Institute of Refrigeration convention and exhibition. Included: M. J. Pratt, manager, C. W. Pritzler, sales manager, R. Hogg, chief engineer, A. J. Hundt, production engineer, A. Wright, refrigeration application engineer, and F. Heinecke, sales engineer.

Coldstream Claims 'Australian 'First'

Coldstream Refrigerators, Ltd. was the first Australian manufacturer of low-pressure refrigeration equipment.

E. A. Travers, managing director, represented Coldstream at the exhibition. He was assisted by Jim Ryves, Joe O'Brien (compressor and condensing unit division works manager), Rex Farrant (chief of the cabinet division), and Mick Sexton, treasurer.

Exhibited by Coldstream were household refrigerator-freezer combinations, self-contained 3-ton air conditioners, water coolers, refrigerated bottle cases, ice cream cabinets, and that special Australian "combination" cabinet (small refrigerator) which provides "a little each" storage of ice cream, bulk milk, sweets, bottles, meats, cakes, and desserts.

Coldstream's two factories in Adelaide make compressors, condensing units, and cabinets. In Sydney, Melbourne, and Perth smaller plants produce cases and commercial cabinets—all backed by a sales and service department.

'Has Made More Commercial Units'

Although perhaps a "small fry" in household refrigerator production, Coldstream believes it has made far more commercial refrigerators now in use than any other Australian sales-service concern.

Condensing units and evaporators also are supplied to refrigeration contractors by this firm.

Sole Australian manufacturer of Weber commercial refrigeration equipment—J. Goldstein & Co. Pty., Ltd.—has offices, showrooms, and factory in Sydney. Col. Goldstein, managing director, managed the exhibit of Weber self-service display cases and soda fountain equipment at the convention and exhibition.

NEW model of a 6-hp. three-phase sealed motor-compressor is shown by W. G. (left) and B. A. Terry of A.B.K. Engineering Pty. Ltd. of North Melbourne.

Associated with Bastian-Blessing Co. as Down Under distributor, Goldstein also makes soda fountain equipment under that license.

A.B.K. Engineering Pty., Ltd., is an original equipment producer located in Melbourne. Under the trade name "Terry," it manufactures belt-driven, air-cooled and water-cooled condensing units from ⅛ to 5 hp.—plus accessible hermetic compressors from ¼ to 6 hp., activated alumina and silica gel dehydrators, replacement seal assemblies, and replacement flapper valves.

All of these products were shown at the exhibition. B. A. Terry, managing director, E. Scott, sales manager, and W. George Terry, secretary attended their exhibit.

Shows Sealed Units

Prime Australian producer of accessible sealed units, A.B.K. displayed a full range of these products—its own design. Beginning with a ⅙-hp. unit in 1948, production steadily has grown through sizes up to 6 hp., all of which were "on stage" at the Exhibition.

Ellis & Judges exhibited commercial open-type compressors from ½ to 7½ hp. (both air and water-cooled) plus batch ice cream freezers, automatic soft-serve and thick-shake ice cream machines, and hotel refrigeration equipment.

E. W. Ellis and S. B. Judges, founders and directors of this refrigeration engineering company, manned their booth along with E. W. Fleming, and L. J. Bradshaw.

Established 23 years ago, Ellis & Judges is a major contractor for hotel refrigeration equipment.

Harris, Hutchinson's line of commercial refrigeration cases includes reach-ins for ice cream and general refrigerated storage, self-serve and bulk storage frozen food cabinets, chest freezers, walk-in coolers, instantaneous beer coolers, beverage coolers, and refrigerated cases made to customer specifications.

F. H. Smythe, commercial manager, headed the firm's delegation to the exhibition. He was assisted by A. E. Dehlsen, production manager, G. Edwards, works manager, W. E. Harding, sales manager, and A. Abraham, sales engineer.

Says Refrigeration Industry 'Well Set'

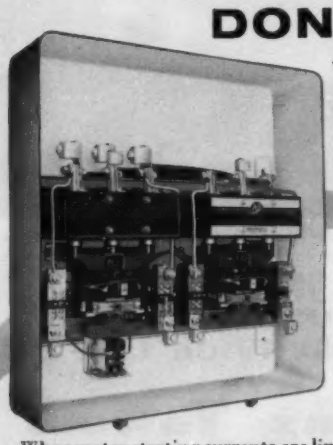
Old-and-true friend A. A. McCullagh, head of McCullagh & Sons Pty., Ltd. (Frigidaire dealer of Camperdown, N.S.W.) reports that the refrigeration industry in Australia is "very well established."

However, presently it is suffering from overproduction. Discounting at both wholesale and retail levels makes "this business less attractive."

Sons John P., a director of the firm, and Ian R. of the mechanical staff, plus K. C. Binns, serv-

(Concluded on next page)

DON'T ARGUE with the Power Company!



Bulletin 736 part winding starter

When motor starting currents are limited by power company regulations, the Bulletin 736 motor starter is frequently a low cost solution. After the part winding motor is accelerated for a preset interval, the second winding is connected in parallel across the line. The motor then goes to full speed and torque without line disturbance or lamp flicker.

Bulletin 736 starters are made in ratings up to 600 hp, 220 v; 1200 hp, 440-550 v. Write for catalog.

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A-B QUALITY ALLEN-BRADLEY QUALITY MOTOR CONTROL

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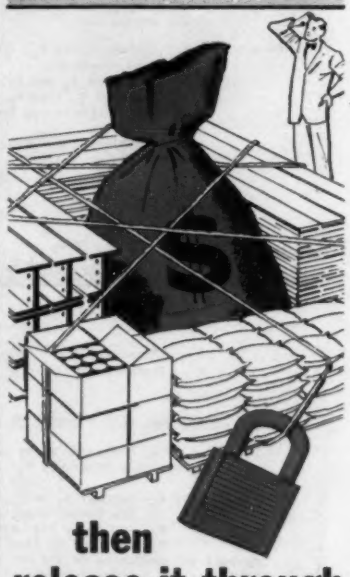

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Model DD 62-S

Model DD 62-S

● New — Refrigerated "Utility" Compartment
● New — Compact, Functional Designs for Bigger Capacity
● New—Trouble Free System Eliminates Costly Service

Here are coolers that are boosting draft sales right across the country. Big, roomy Beverage-Air Coolers that hold up to 3 kegs on tap, 1 on storage and 3 to 4 cases in "Utility Compartment." They offer the best balanced cooling system available—assure low cost cooling from keg to faucet valve. All models with stainless steel tops and stainless or baked enamel sides and ends.

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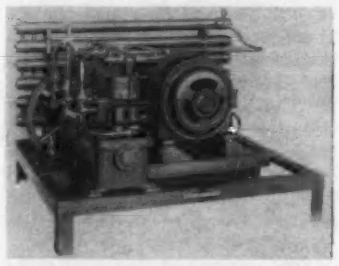


COMMERCIAL open-type compressor made by Ellis & Judges.

(Concluded from preceding page)

ice manager, R. F. Mullan, sales manager, and Roy Parton, sales engineer, were present at the convention and exhibition.

D.G.M. Refrigeration Ltd., a subsidiary of Dangar, Gedye & Malloch Ltd., is sole New South Wales distributor of Kelvinator and Temprite products. A. C. Pritchard is sales manager.

Kelvinator Distributor Since 1924

Dangar, Gedye & Co., Ltd. began commercial and household electric refrigeration distribution in 1924 with Kelvinator equipment. Since that time this firm, and its subsequent subsidiary, D.G.M. Refrigeration Ltd., has handled Kelvinator products continuously.

That makes it the oldest Australian company still selling original commercial refrigeration units.

As biggest distributor of commercial equipment in New South Wales, the firm innovated flooded-type, cross-finned evaporators in 1928, forced draft coolers in 1934, automatic hot gas defrost in 1947, reverse cycle cooling and heating in 1948, open self-service display cases in 1949, and extensive use of self-contained refrigeration equipment with hermetic condensing units in 1954.

To Build McCray Self-Serve Cases

Last year an agreement was consummated with McCray to build that company's self-service commercial refrigeration display cases in Australia.

D.G.M. has its own installation and service facilities in metropolitan Sydney, also in its Newcastle, Lismore, Wagga, Tamworth, and Young branches. In addition, agents in New South Wales rustic areas help move goods.

R. Werner & Co., Pty., Ltd. manufactures American equipment under license from Marley (cooling towers), Creamery Package (multi-cylinder ammonia compressors), Dunham-Bush and Heat-X (compressors, boosters, cooling coils, chillers, heat transfer surfaces), Westinghouse (compressors, air conditioning equipment), Detroit Ice Machine ("Dimco" cast aluminum coils), and Tenney Engineering (low temperature and environmental test equipment). It is located in Richmond, Victoria.

This subsidiary of Email Ltd. exhibited ammonia compressors, "Freon" compressors, Heat-X water chillers, Marley "Aquatowers," Westinghouse packaged air conditioners, and truck refrigeration units at the AIR show.

W. E. Dobney, Jr. of the air conditioning division, L. Allen, Dunham-Bush Heat-X division, J. T. Perry, ammonia division, and J. Swainson, Marley division attended. Frank R. Slessar, managing director, is an old acquaintance of many Americans.

'Real Pioneer'

This outfit is a real pioneer in Australian refrigeration. Rudolph Werner arrived Down Under in 1883, built his first small vertical open compressor a short time later.

"Werner's" is the only Australian maker of large sealed units—all of which are the accessible hermetic type.

Representatives in all Australian states handle engineering and contracting of both packaged and field assembled industrial-type installations.

A wide range of refrigeration and air conditioning products has been made available to the Australian market under Werner's manufacturing agreement with Dunham-Bush.

Heat-X "inner fin" tubing is currently being used in direct-expansion chillers, refrigerant condensers, and a host of other products.

The D-B Div. also makes externally finned air conditioning coils. It hopes soon to begin production of inner fin air-cooled condensers, evaporative condensers, and an all-aluminum forced draft coil featuring the inner fin.

A. G. Healing, Ltd. is a distributor-supplier of refrigeration and air conditioning replacement parts, automatic controls, expansion valves, and general accessories from its main office in Melbourne and branches in Sydney, Brisbane, Launceston, and Tasmania.

This company employs about 2,000, and covers every Australian state.

E. R. Walcot, department manager, is an immediate past president of the N.S.W. Div., Australian Institute of Refrigeration. He attended many functions at the convention and federal conference of AIR.

Big Importer

Big Australian importer of refrigeration controls and accessories is Refrigeration Supplies Pty., Ltd. of Sydney. Member of the Refrigeration Parts Wholesalers Association of Australia, this outfit imports items from Penn Controls, Inc., Controls Co. of America, Jas. P. Marsh Corp., and Mueller Brass Co.

Also shipped in to Refrigeration Supplies Pty., Ltd. are parts and supplies from Sillcox, Acme Industries, Alco Valve Co., Copeland, Detroit Lubricator, Kerotest, Kramer Trenton, McCray, Penn Brass, Refrigeration Appliances, Inc., Schnacke, and Tranter.

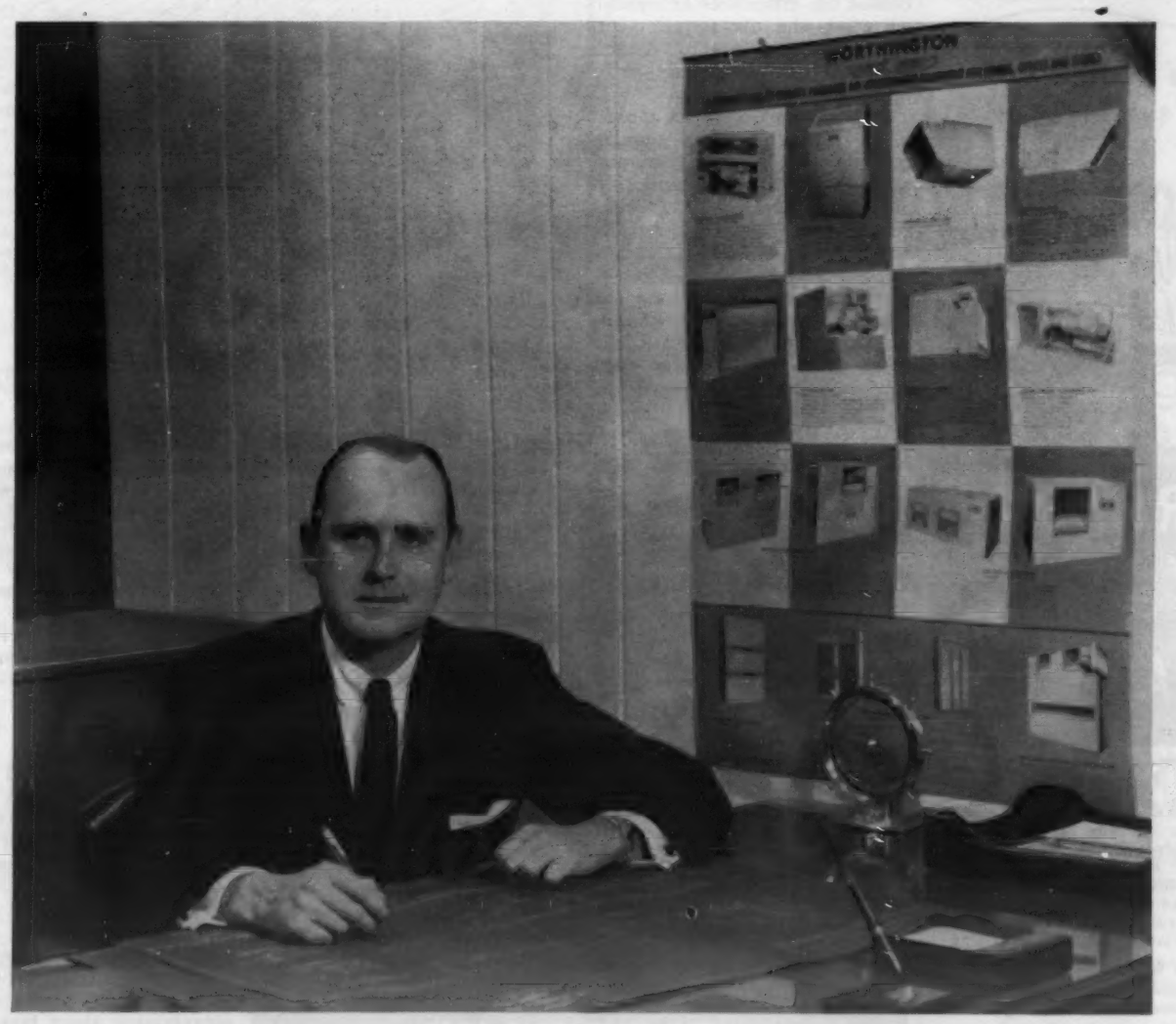
A. J. Baker & Sons, Leonard household and commercial refrigerator and air conditioning distributor in Perth, "the most isolated city in the world, 2,500 air miles from Sydney"—is a partnership.

It consists of father A. J., sons Geoffrey J., and Neil L. The latter attended the first Australian Institute of Refrigeration convention and exhibition.

Baker's install and service commercial refrigeration equipment, sell and service household refrigerators, freezers, and room air conditioners.

Trying to find the right man for a hard-to-fill vacancy—the NEWS' Classified Ads are read by your man.

Place your ad today!



Complete-line air-conditioning lets Worthington dealers

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Probably the most complete line of air conditioning equipment in the world—*Worthington, naturally*—is signing on a select group of new air conditioning dealers—*yourself, possibly?*

Many, many different models permit these *fortunate* dealers to put together the most efficient and economical combinations of air conditioning equipment for any *specific* job. Handling *exactly* the right equipment for every air conditioning problem eliminates equipment compromises, means these *smart* dealers can "custom-quote" on every job. And behind this job-tailored equipment stands 70 years of respected Worthington experience and front-line service. (Incidentally, these same *intelligent* new dealers will find that Worthington equipment is backed by a 5-year warranty which includes a generous dealer labor allowance.)

Interested in quoting on equipment fashioned to the job, not jobs fashioned to the equipment? Interested in increasing your sales, cutting down on lost orders? If so, *Worthington wants you—and you'll want Worthington.* Write today for the complete air conditioning story. Worthington Corporation, Air Conditioning and Refrigeration Division, Section 12-4, Harrison, N. J.

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Flexi-cool line: Air-cooled, ceiling-mounted, split systems • Water-cooled, self-contained, ceiling-mounted units • Smallest floor-mounted unit available • Hang it, lay it down, stand it up • Vertical and Horizontal cooling coils • Remote water-cooled packaged unit • Water-cooled self-contained packaged unit • Air-cooled packaged units • Air-cooled condensers • Air-cooled condensing units • Packaged water-chillers — hermetic and open • Reciprocating compressors • Air handling units • Evaporative coolers • Evaporative condensers • Fan and coil units

'Comfort Crusade'

Century Engineering Offers Promotion Kit

CEDAR RAPIDS, Iowa—Century Engineering Corp. distributors and dealers are being offered a colorful kit containing newspaper advertisement mats, direct mail cards, and radio and television announcements, plus an assortment of store trim to promote their own "Comfort Crusade."

The ads and mailers illustrate many of the discomforts of an outmoded heating system and offer prospects a free comfort chart to rate the performance of their present system, as well as to help them specify exactly what standards they expect of a new installation, it was stated.

Everything in this promotion is designed to help the dealer sell "comfort" rather than a particular heating unit.

Difficulties Encountered When Air Requirements for Add-on Cooling Are Much Different than for Heating

What Happens to Home Heating System When Cooling Coil Is Added?

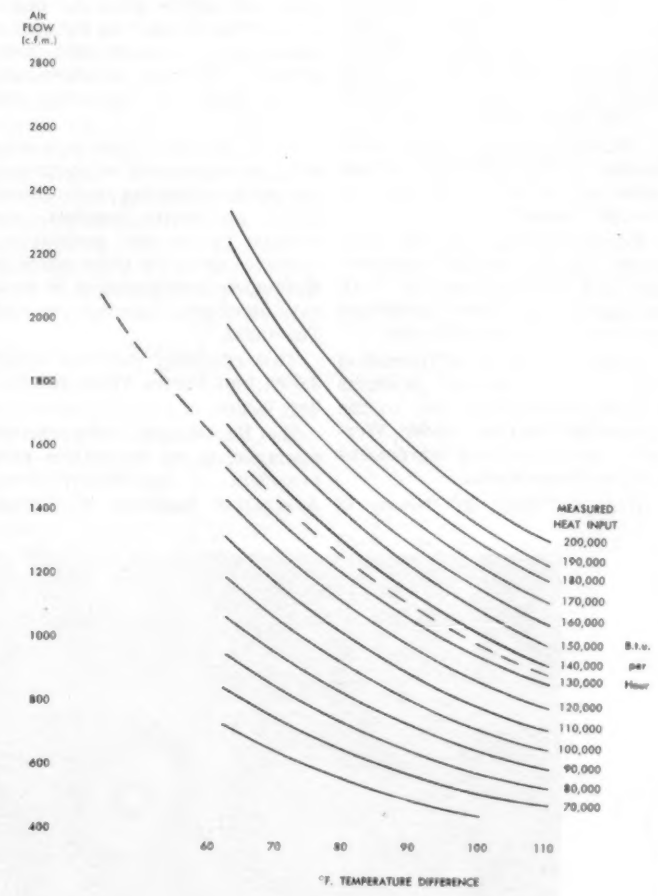
By Frank J. Versagi

MINNEAPOLIS—"What happens to a heating system when a cooling coil is added" was posed as a question, then answered by E. Weiss, product application engineer of American Furnace Co., in his talk on installation and service of home air conditioners at a recent educational conference sponsored by the Upper Midwest Regional Association of Refrigerating Service Engineers Society and the William Hood Dunwoody Institute of this city.

After a review of normal installation techniques, Weiss discussed the difficulties encountered when the air requirements for an add-on cooling system are greatly different than air requirements for heating.

As an example, Weiss chose a house whose heating requirement is 135,000 B.t.u. Assuming a normal 90° F. temperature rise in the heated air, the air requirement for this heating would be about 1,100 c.f.m. If it were necessary to add 5 tons of cooling, air requirement for this function would be 2,000 c.f.m.—at the standard rate of 400 c.f.m. per ton of cooling.

"If we design the blower for the cooling load only, the necessary temperature rise during the heating season cannot be obtained. (Chart I).



This chart shows relationship among heat input, temperature difference between inlet and outlet air, and air supply or requirements for furnace blowers. According to Weiss, good heating practice demands that the relationships for a given system fall on the curves. The dotted curve shows the effect on temperature difference when the air requirements for 5 tons of cooling are imposed upon a heating system with a 135,000 B.t.u. input.

"The chart shows the relationship among air requirements, heat input, and temperature difference. With our example of a 135,000 B.t.u. input and a 2,000 c.f.m. air requirement for cooling, we are off the effective range of the curves. Pushing through that much air with the heat input fixed at 135,000 B.t.u. will give approximately a 43° temperature difference, and your customer will be complaining about lack of heating.

'Watch Sale Go To Competitor'

"Of course," said Weiss, "you could tell the customer that you would supply him with two sets of pulleys, and he could change them according to season. You could tell him this and watch the sale go to a competitor.

"Two-speed motors might occur to you. While these will work sometimes, the fact is that for normal heating and cooling operations, two-speed motors are only on the button about 20% of the time.

"The practical solution is to use a damper in the main trunk line. Block off some of the air in winter and let the full volume go through in summer. Remember not to put the restriction on the return air side; you'll suck in dirt and get noises and squeals."

It is possible in some areas to have the reverse condition—with a house needing 135,000 B.t.u. for heating but only needing 2 tons of cooling. In such a case the 800 c.f.m. of air needed for cooling would call for dampering in summer rather

(Concluded on next page)

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DEAN COLD PLATES give you refrigeration fundamentals . . . basic, uncomplicated components that make jobs more profitable and more efficient.

NO MOVING PARTS SIMPLE TO INSTALL
LOW COST SAVE SPACE
EASILY CLEANED
LOW OPERATING COST
MINIMUM FIELD SERVICE

The simpler your system, the lower your cost, and you gain greater efficiency! Don't let extra gadgets throw your budgets out of whack. Use Dean Cold Plates.

Consider these advantages the next time you have applications for refrigerator displays, ice bank units, water coolers, freezing equipment, cold storage rooms, soda fountains, back bar requirements, low temperature test cabinets or environmental equipment. When used as shelves, partitions, tanks, etc. Dean Cold Plates provide structural as well as heat exchange functions.

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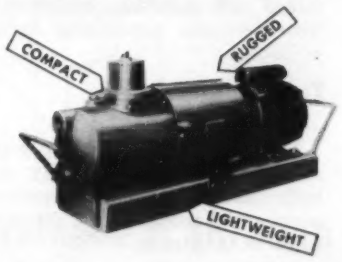

Beach-Russ Portable Vacuum Pumps are designed *specifically* for dehydrating and testing refrigeration and air conditioning units. These high performance, quiet operating, portable pumps are available in two sizes:

- Model A Two-Stage Pump—1/10 mm. vacuum, blank flange, 2.5 cfm, 1/3 HP, weight 80 lbs.
- Model O Single-Stage Pump — 1 mm. vacuum, blank flange, 1 cfm, 1/6 HP, weight 48 lbs.

Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY DEPT. 53
50 CHURCH STREET • NEW YORK 7, N. Y.

Send descriptive literature covering
☐ Model O Single-Stage Vacuum Pumps.
☐ Model A Two-Stage Pumps.

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CITY..... ZONE.....
STATE.....

BEACH-RUSS CO.
50 Church St., New York 7, N. Y.

(Concluded from preceding page)

than in winter, he explained.

Simple calculations can give an estimate of air, horsepower, static pressure, and r.p.m. required, according to Weiss, but only for estimation. "Do not use the calculations as a hard and fast rule for changeover without checking amperage draw of the motor and temperature drop across the coils after the installation is made," he warned.

A sample calculation was carried through as shown at right:

What Happens to a Heating System When a Cooling Coil Is Added

How it effects Static Pressure,
How it effects Blower r.p.m.,
How it effects Motor hp.

System static pressure is assumed as follows:

Heating ducts and registers	.09
Return ducts and registers	.09
Total external is approximately	.18
Add the resistance of the furnace	.12
Add the resistance of the filters	.10
Total	.40
The resistance of a wet coil will normally add	.20
Total	.60

To determine at what r.p.m. the blower wheel is operating with a motor pulley of 3-in. diameter and a blower pulley of 9-in. diameter and a motor rated at 1,725 r.p.m. calculate as follows:

$$\frac{1725 \times 3}{9} = 575 \text{ r.p.m.}$$

Assuming that the above unit has a capacity of 1,300 c.f.m. at the above external static pressure of .18, and that the hp. requirement is about .27 (this assumption made because the manufacturer furnished as original equipment a ⅓-hp. motor) at the .40 total static, let's check what happens when we install a coil to this installation.

Our cooling requirement will be a 5-hp. with 2,000 c.f.m. requirement to be put through the existing heating duct system.

First we must determine the new r.p.m. of the blower.

$$\frac{575 \times 2{,}000}{1{,}300} = 885 \text{ r.p.m.}$$

This is approximately an 8-in. blower pulley and a 4-in. motor pulley combination. It would check out as follows:

$$\frac{1725 \times 4}{8} = 863 \text{ r.p.m.}$$ Reasonably close for a trial run.

The belt length for an 8-in. and 4-in. combination should be the same as for the original 9-in. and 3-in. combination.

Now that we know at what r.p.m. the blower must operate, let's see what happens to the static pressure.

If our external pressure on the heating system including the furnace was .40 and we add a cooling coil, the normal addition for a wet coil is .20 making the total resistance .60.

If we also increase the c.f.m. from 1,300 to 2,000 the static would increase as follows:

$$.60 \times \left[\frac{2{,}000}{1{,}300}\right]^2 = 1.4$$

Accordingly the horsepower requirements would increase as follows:

$$.27 \times \left[\frac{2{,}000}{1{,}300}\right]^3 = .98 \text{ hp.}$$

In this particular instance it would be recommended that a 1-hp. motor be used. If a ¾-hp. motor were used, it would be overloaded about 31%. It is not good practice to overload any motor beyond 25% of its name plate rated capacity.

House Orientation Important in Cooling, Not in Heating

Weiss went on to discuss differences between heat gain and heat loss calculations. "In heating," he explained, "we can ignore house orientation and solar radiation. In cooling these factors must be considered.

"In a housing development, for example, with scores of identical homes, it is possible to put practically the same heating plant in all of them. But the cooling requirements of one house may be radically different from an identical house across the street, or down the block. You just don't cool a housing development with calculations made on one of the typical houses."

Briefly describing unusual problems in cooling, he offered that in restaurants with open chimney charcoal grilles, one ton of cooling must be added for every 4 sq. ft. of chimney area. More refrigeration will be needed if the grille is not positively ventilated, according to Weiss.

Points Emphasized

In discussing the basic installation techniques, he emphasized certain points which he considered extremely important. Among these was a warning against soldering the liquid and suction line together to get a heat exchanger effect.

In Weiss' opinion, this practice is harmful to the compressor which is designed for suction cooling by a gas with a specific temperature range.

Increasing the suction gas temperature beyond this range is uncalled for, he further indicated.

When ambient temperature is low enough, it is possible to charge liquid refrigerant into the suction side of the system, according to Weiss. However, if the entire charge (which should be weighed) will not go in with the compressor off, charge the rest of the refrigerant in the usual manner—from the vapor phase with the compressor running.

'Bends Should Be Smooth, Easy-Flowing'

Bends should be smooth and easy flowing. If there isn't room to make a good bend, use an appropriate fitting, like a 90° elbow, to assure smooth refrigerant flow. "Use bending tools," he insisted.

"I've never seen a knee yet that was made for bending tubing."

HIC Offers Promotion Package To Assist Contractors Get More Remodeling Business

NEW YORK CITY—A third free package of materials designed to help local members of the Home Improvement Council get more remodeling and modernization business has been sent to the nearly 3,000 retailers, contractors, financial institutions, and other council members at the community level.

Included in the new package is information on how to use newspaper advertising effectively, how to advertise on television, and how to sell via telephone, plus details about a complete 13-ad newspaper program.

This kit is one of a projected series of six packages of advertising and display aids which will be sent to local members during the year. There is a fourth kit, containing materials to promote the "Better Your Home" contest which begins July 1, now in preparation.

Will Pay Cash For ROOM - AUTO PACKAGE Units in Original Crates

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Refrigeration & Air-Conditioning Outfit

All the equipment you need for air-conditioning and refrigeration work in one handy steel case.

SENSITIVE LEAK DETECTION
—shows up as little as 100 parts of refrigerant gas in a million parts of air—even leaks too tiny to find with soapy water.

JOB-MATCHED OPEN FLAMES
—three torch stems for the exact flame you need—all instantly interchangeable with leak detector on same handle.

EASY TO USE
—no delicate parts to cause trouble. Color and intensity of detector flame indicate location and size of leak. Torch concentrates heat where needed.

AUTOMATIC CONTROL
—adjustable regulator maintains selected gas pressure. Calibrated screw for fast adjustment. Needle valve on torch handle for precise flame control.

Outfit includes torch handle, leak detector stem, 3 torch stems, regulator, 12½-ft. hose assembly, suction hose, and enameled steel carrying case. Complete (for B or MC Tank), $41.00.

Available for immediate delivery from your local supplier of LINDE products. Or write for further information to LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.

Linde TRADE MARK — UNION CARBIDE

"Linde," "Prest-O-Lite," and "Union Carbide" are registered trade-marks of Union Carbide Corp.

EXPANSION VALVE FREEZE-UP?

... call on the genie in your bottle of

THAWZONE®

Many a "defective" expansion valve works perfectly again with the addition of a little *Thawzone* to the refrigerant.

This is one of the reasons why you should take it on *every* job and use it in *every* installation charged with the modern fluorine refrigerants (*Freon*®, *Genetron*®, etc.), or with methyl chloride, methylene chloride or isobutane.

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- eliminates freeze-ups
- minimizes corrosion and copper plating
- helps keep expansion valve free of sludge and rust
- destroys trouble-causing moisture
- scavenges out oxygen

®Reg. Trade Names: Du Pont & Allied Chemical Corp.

Ask your refrigeration wholesaler today for Thawzone and the free Thawzone Service Manual.

THAWZONE®
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TWO OTHER AIDS FOR BETTER REFRIGERATION SERVICE

TRACE
—the simple, fast way to pinpoint refrigerant leaks . . . a positive leak tag.

Leak Lock
—the joint sealer engineered for refrigeration use.

Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

Answer to An Ammonia Problem (2)

NON-CONDENSABLE GASES FROM CHEMICAL ACTION

The nature of chemical actions is so varied that only a chemical analysis of the oil and refrigerant could point to any definite conclusions.

However, such chemical actions can result in the release of gases that would not condense at the pressures and temperatures existing in an ammonia system, and would, therefore, appear in the system as non-condensables.

It would be well to ascertain if there have been any changes made in this equipment in recent months. For example, it has been reported that the galvanize coating of pipe that is galvanized inside, is attacked chemically, resulting in non-condensables that persist over a period of several months. Perhaps some such thing may have happened.

A STICKING HIGH SIDE FLOAT

The high side float valve should be checked. If it has become corroded and sticks closed at times, it will result in a pump-down of the refrigerant from the low side. This will cause a low vacuum on the low side that will cause a great deal of air to enter if there are leaks in the low side.

In addition, the pump-down will load the condenser perhaps to the point, especially if some non-condensables are present, to cause excessive head pressures.

The sticking of the float, if it does occur, may be due to corrosion or mechanical condition, or it may be "gas bound." Even a small amount of non-condensables, insufficient to be noticeable on the gauge, can gather in the float chamber and prevent the entrance of liquid from the condenser, so the float cannot open.

It is common practice to use a small purge tube from the upper part of the float chamber to the surge drum or elsewhere in the low side. This small line may be restricted or stopped up with scale, preventing purging of the float chamber and resulting in gas binding.

AIR LEFT IN THE LOW SIDE

The fact that although you hand purged the condenser heavily, you soon got excessive head pressure, seems to indicate that the low side was full of non-condensables which gathered in the condenser when you started the compressor again, adding support to the supposition that there is a leak somewhere on the low side of the system.

Hand purging is rarely effective. It usually has to be repeated several times at intervals, in order to remove most of the non-condensables. Even then it is not dependable, and quite often a great deal of non-condensables are still left "scattered" throughout the refrigeration system.

It must not be supposed that they all gather in the condenser, and can be removed by purging the condenser once. Eventually they do tend to gather there, and eventually about all of them can be purged out, but it takes a lot of time, and persistence, and results in the loss of a large portion of the charge of refrigerant.

AUTOMATIC PURGER SUGGESTED

Although this is a small system, it might pay to consider the installation of a refrigerated drum-type, automatic purger. It would keep the system free of non-condensables, and reduce the operating cost.

You are doubtless familiar with this device, which is made by several companies. It is easy to install and, as you know, it is quite common on the larger systems.

The above suggestions are based on the premise that non-condensables with or without being aggravated by a possible sticky float, are the chief source of the difficulty; also that the 180 p.s.i.g. head pressure as reported by the customer, was correct. Everything points to the probability of his being right.

If, on the other hand, the head pressure fell to say 135 p.s.i.g. or thereabouts during the off-cycle, the possibility of a restricted or dirty condenser or of excessively warm supply water, must be considered. Your reference to cleaning the condenser would seem to eliminate these possibilities, however.

6 Join ARI as New Mobile Product Section Is Formed

WASHINGTON, D. C.—As a result of formation of the newest product-section in the Air-Conditioning & Refrigeration Institute, six companies have become new members of ARI.

Mobile Air-Conditioning and Refrigeration Section also includes a number of firms already members of ARI and of other sections. New members are:

American Mfg. Co., Montgomery, Ala. Henry O. Kirkpatrick, general manager, is official representative of the company and serves as chairman of Mobile Air-Conditioning and Refrigeration Section. Luther H. Waller, Jr., chief engineer, is alternate representative.

Coldmobile Div., Union Asbestos & Rubber Co., Blue Island, Ill. Max H. Schachner, manager and chief engineer, will be official ARI representative with D. N. Quamme, sales manager, serving as alternate.

Hunter Mfg. Co., Solon, Ohio. Official representative is Robert H. Hunter, president, and A. J. Hanje, vice president, is alternate.

Thermo King Corp., Minneapolis. M. B. Green, vice president, will be official representative, Ralph W. Porter, general sales manager, alternate.

Transicold Corp., Los Angeles. John H. Grim, assistant sales manager, has been designated official representative with R. L. White, sales manager, alternate.

Tru Kooler, Inc., Oelwein, Iowa. G. E. Hicke, sales engineer, is official representative, Earl E. Deyo, vice president, alternate.

ARI member companies which have joined the new Mobile Section include Dole Refrigerating Co., Keco Industries, Inc., Kold-Hold Div., Tranter Mfg. Inc., McGraw-Edison Co., Tecumseh Products Co., and York Corp., subsidiary of Borg-Warner Corp.

Illinois Engineering Elects Willis V.P.

LOUISVILLE, Ky. — The directors of Illinois Engineering Co. have elected John J. Willis a vice president of the Chicago firm.

Willis has been serving as assistant general manager and sales manager. He will continue to serve as sales manager.

Illinois Engineering is a wholly-owned subsidiary of American Air Filter Co. here.

Frankell Will Rent Hermetic Compressor Openers with Option To Purchase

NEW YORK CITY—Frankell Mfg. Co. announces that its hermetic compressor opener is now available on a rental basis.

Rental fee is $30 per month, and must be for at least one year, the announcement said, adding: "The user may exercise an option to buy the machine at any time, at which time 75% of the rental fees will be credited toward the purchase price. Cost of machine is $695."

This machine opens any shape hermetic compressor up to 20 in. in diameter—regardless of position of the weld, according to the company. It is 40 in. by 24 in. by 40 in., takes 11 amps full load—115 volts, 60 cycles, weighs approximately 275 lbs., and is fully guaranteed, the firm pointed out.

JANITROL • RHEEM • FORD MOTOR CO.
TRANSICOLD • UNIFLO • O. A. SUTTON

THE QUALITY OF THE SUPER-FLO FILTER-DRIER

JOHN E. MITCHELL • PAUL MUELLER CO.
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CAN BE FOUND IN ITS CUSTOMERS

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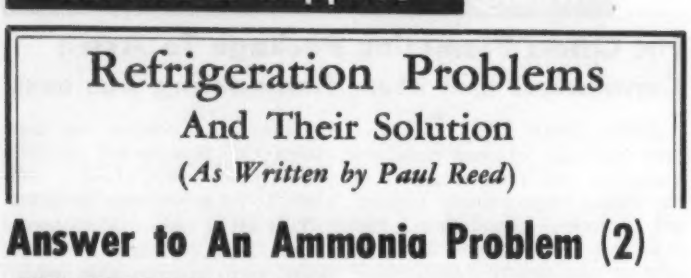
FEDERAL REFRIGERATOR • LINTERN
CHRYSLER • PRIMOR • IDEAL COOLER
D. W. ONAN & SONS • CLIMATIC AIR
SIMPLEX MFG. • FRIGIKAR • PARKOMAT
NATIONAL-U. S. RADIATOR • AMANA
GILSON • GIRTON • AND MANY OTHERS



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9/16 STANDARD
Write for Bulletin R-11

REMCO INC.
ZELIENOPLE, PA.

Tells the Truth about Temperature

The Auto-Lite Model "G" Temperature Indicator provides low-cost protection against temperature variations in processing and storage operations. This reliable temperature indicator is Auto-Lite engineered for your specific needs . . . offered in 8 types of cases.

- Precision-made . . . convenient remote reading or rigid stem mounting.
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- Wide selection of dial ranges to meet individualized needs.

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INDUSTRIAL INSTRUMENT DIVISION
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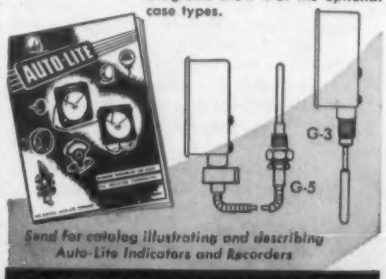
Diagrams show 4 of the optional case types.



Send for catalog illustrating and describing Auto-Lite Indicators and Recorders

TEMPERATURE INDICATORS AND RECORDERS

THE PRICE IS RIGHT

Sure, everybody likes to make a buck go farther. At the Harry Alter Co. we think our prices are *always low.* And everybody big or small, city or country, pays the same fair price. Our transportation allowance saves you even more money. (And if you pick up at one of our 6 counters, you still get this allowance.)

We're Real Specialists in

REFRIGERATION • AIR CONDITIONING • ELECTRIC MOTORS

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SAVE MONEY, time and effort by ordering from our new *Dependabook,* the most complete catalog of all. 160 pages. Over 10,000 items carried in stock. *Wholesale only.* Your orders filled really fast by mail, or picked up at one of six big warehouses.

Write on your letterhead for the 1958 DEPENDABOOK . . .
Also our monthly Flyer of surplus and close-out Bargains.

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FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

Bulk Milk Tanks-- What Others Think About It--

(Concluded from Page 1, Col. 2)

Still leading the states in total number of installations is Wisconsin, with 11,336 (and a 1957 increase of 3,609). Second highest total number of installations—8,000—was scored by the state with largest increase of the year, Michigan, where a 5,000 gain increased its previous total 266%.

Also in the class of "1,000-or-over increase" for the period Jan. 1, 1957-Jan. 1, 1958 were: North Carolina (2,478); Texas (2,350); Illinois (2,211); New York (1,567); Pennsylvania (1,530); Ohio (1,500); Missouri (1,038); Nebraska (1,025); and Minnesota (1,000).

Ranking among leaders in percentage of conversion to bulk are two states, Arizona and Florida, where relatively small numbers of dairy farms are coupled with relatively high conversion rates. About 95% of Arizona dairymen are now using farm tanks (with a total of 470), and 875 of the 926 producing dairies in Florida now have tanks.

Complete installation figures are as follows:

Bulk Milk Tank Jobs

	Jan. 1 1956	Jan. 1 1957	Jan. 1 1958
Alabama	60	261	627
Arizona	425	450	470
Arkansas	35	151	270
California	3,550	3,550	4,383
Colorado	185	358	540
Connecticut	786	1,415	1,790
Delaware	35	46	60
Florida	650	850	875
Georgia	396	412	775
Idaho	225	267	291
Illinois	1,500	4,275	6,486
Indiana	700	2,100	2,550
Iowa	1,010	2,500	3,083
Kansas	400	600	1,212
Kentucky	200	1,377	2,051
Louisiana	45	212	1,150
Maine	600	809	1,152
Maryland	723	1,282	1,755
Massachusetts	469	747	956
Michigan	1,000	3,000	8,000
Minnesota	2,500	5,000	6,000
Mississippi	27	85	300
Missouri	48	824	1,862
Montana	80	100	182
Nebraska	140	975	2,000
Nevada	106	155	166
N. H.	161	234	318
New Jersey	588	702	794
New Mexico	45	67	221
New York	850	1,900	3,467
N. Carolina	250	522	3,000
N. Dakota	95	135	260
Ohio	787	3,000	4,500
Oklahoma	175	344	964
Oregon	655	998	1,197
Pennsylvania	1,200	2,020	3,550
Rhode Island	92	170	225
S. Carolina	184	374	566
S. Dakota	500	675	687
Tennessee	150	300	800
Texas	451	1,150	3,500
Utah	228	425	757
Vermont	418	828	1,280
Virginia	750	1,000	1,800
Washington	2,900	2,925	3,000
W. Virginia	11	17	48
Wisconsin	3,464	7,727	11,336
Wyoming	36	72	107
U.S. Total	**29,885**	**57,386**	**91,363**

In several instances, figures cited for installations on Jan. 1, 1957 are revisions of statistics announced a year ago, when an earlier study of this series was published.

Compilers of the statistics expressed thanks for assistance in obtaining data to personnel in state Departments of Agriculture, state Bureaus of Weights and Measures, land grant colleges, and dairy associations.

Get your copy

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzales—25¢ each.

Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

(Concluded from Page 1, Col. 4)

same price."

• Thomas J. Watson, Jr., president of International Business Machines Corp., said his company has worked out a new plan to "compensate salesmen more equitably for the effort necessary to pioneer new accounts."

He said that salesmen, to sell the volumes that manufacturers can now produce, may have to change some of their selling methods.

Referring particularly to automobile salesmen, Watson said they **"must sell on a wholesale basis** using direct mail and telephone to develop more or less sure prospects before using the extended time necessary for a personal call, and, hopefully, a sale."

• Elisha Gray, chairman of Whirlpool Corp., also opined that businessmen must make their products more inviting to the consumer, if they are to succeed.

Gray confessed that Whirlpool found some of its products "over-designed" and is **returning to "products which are simpler to operate, a little more direct in their appeal to the consumer."**

He said Whirlpool is trying to provide appliances that distributors can adapt—through optional features—to the needs of their territories.

• Franklin G. Lunding, chairman of the board of Jewel Tea Co., told the conference that his firm intends to open a minimum of 35 new supermarkets this year—2½ times the number opened last year, upping the company's personnel by about 10%.

Lunding said **now is "as a favorable time to construct new buildings at lower costs** than was possible even six months ago."

Cordiner Outlines G-E's 10 Basic Steps To Climb Out of Recession

NEW YORK CITY—Ten basic steps that General Electric Co. is taking to climb out of the recession was outlined at the Economic Mobilization Conference by Ralph C. Cordiner, board chairman of General Electric Co.

They are:

1. Eliminate every element of waste that ups cost of producing and marketing goods.

2. Orderly planning to keep production as steady as sales and forecasts permit, thus minimizing the problems of unemployment.

3. Adjust inventories as rapidly as possible and in an orderly manner.

4. Continue research and development so as not to delay the new products, new jobs, and new industries of the 1960's.

5. Continue recruiting, developing, and training scientists, engineers, and businessmen.

6. Continue $500 million capital investment program. The company plans to initiate projects amounting to $135 million this year.

7. Offer unusual values to consumers, though, Cordiner said, "bargain prices cannot be expected to continue much longer."

8. Offer credit terms that include unemployment protection and a "skip payment" plan that defers the first monthly installment for 90 days.

9. Carry out "Operation Upturn" to bring to the attention of customers "the better service and better values already available."

10. Try to help the public understand the facts about the recession and what is required to bring about recovery.

ReDisCo Offers 'Peace of Mind' Credit for Those With Reduced Income

DETROIT — Refrigeration Discount Corp., Kelvinator's sales financing subsidiary, has announced a new credit plan which provides for reduced payments, "skip" payments, and in an emergency even returns to customers part of the money they have paid.

C. R. Brogan, president of Refrigeration Discount Corp. (ReDisCo), said the new copyrighted "Peace of Mind" bond plan was to become effective immediately.

It was designed to implement Kelvinator's "Selling Means Jobs" campaign and to encourage people to buy appliances they need right now without undue concern about monthly payments should they have incomes reduced or become temporarily unemployed.

The bond permits ReDisCo time payment users to: reduce payments by one-half of the required monthly payment; extend their payments by one or more months; and to borrow a portion of payments already made.

WHAT . . WHEN . . WHERE
— A Guide to Coming Events of Interest

Institute of Appliance Mfrs. Annual Convention, Exposition
June 1-4, Netherland-Hilton hotel, Cincinnati.

National Association of Retail Grocers Convention and Exhibition, June 8-12, Coliseum, New York City.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil-Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers and American Society of Refrigerating Engineers JOINT MEETING
June 23-25, Leamington hotel, Minneapolis.

National Plumbing-Heating-Cooling Exposition and National Association of Plumbing Contractors Convention
June 30-July 3, Pan Pacific Auditorium, Los Angeles.

Union Carbide--

(Concluded from Page 1, Col. 4)

sign capacity of 50 million pounds per year of Ucon fluorocarbons."

Ucon fluorocarbons will be produced for use as refrigerants in air conditioning and refrigeration equipment and as aerosol propellants. The specific products to be marketed by Carbide will include:

UCON Fluorocarbon 11—Trichloromonofluoromethane;

UCON Fluorocarbon 12—Dichlorodifluoromethane;

UCON Fluorocarbon 22—Monochlorodifluoromethane;

UCON Fluorocarbon 113—Trichlorotrifluoroethane;

UCON Fluorocarbon 114—Dichlorotetrafluoroethane.

"Carbide's entry into the fluorocarbons field is based on a long-range view of market potential that indicates substantial future growth," the announcement said. "A staff of technically trained representatives will be calling on prospective users of Ucon fluorocarbons this fall.

"This sales organization will be supplemented by a force of specialists who are well acquainted with the particular interests and problems of aerosol and refrigerant users."

Faster Freezing of Packaged Foods!

- Convenient "pass-through" operation
- Special square tube Vacuum Cold Plates
- Available with or without cabinet

DOLE REFRIGERATING COMPANY
5920 NORTH PULASKI ROAD, CHICAGO 46, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N. Y.
Dole Refrigerating Products Ltd., 29 Brock St., N., Oakville, Ont.

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Freze-Cel DOUBLE CONTACT PLATE FREEZER

DOLE THE Cel LINE

NOW...
SERVICE ALL TYPES OF HERMETIC UNITS
with One Valve!
THE NEW KEROTEST HERMETIC SERVICE KIT

Note these Features

★ Eliminates the need for a separate valve for each hermetic unit serviced. Master valve is furnished with adaptors and stem extensions to service specific units.

★ Stainless steel stem provides long service life—*at no added cost.*

★ Available with or without compound gauge in large heavy gauge steel box.

★ Many other time and cost saving features.

See your Kerotest wholesaler today.

Ask for No. 4321 or 4321G (with gauge).

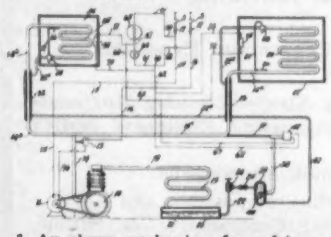
KEROTEST

KEROTEST MANUFACTURING CO.
2502 Liberty Avenue
Pittsburgh 22, Pa.

PATENTS

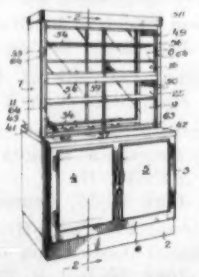
Week of March 11

2,826,044. ALARM MECHANISM FOR REFRIGERATION SYSTEMS. Guy J. Beer, Saginaw, Mich. Continuation of application Serial No. 340,189, March 4, 1953. This application Feb. 8, 1956, Serial No. 564,280.



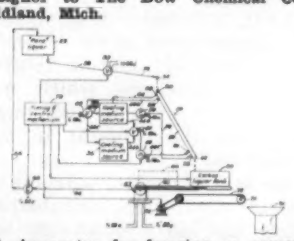
1. An alarm mechanism for refrigerator systems having a receiver in the liquid line to receive condensed refrigerant from a condenser comprising, a float chamber connected to said receiver, flow responsive alarm means communicating with said chamber, and float and valve mechanism in said chamber preventing communication with an actuation of said alarm means except when the float is forced downwardly upon the emptying of liquid from said receiver and the passage of uncondensed refrigerant from said receiver into said float chamber.

2,826,046. REFRIGERATED DISPLAY CASE. Albin T. Tobiasz, Norwood Park, Ill., assignor to Leitner Equipment Co., a corporation of Illinois.



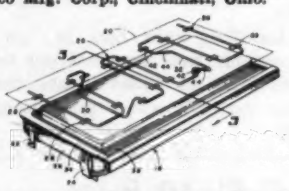
A refrigerated display case having a pair of insulated side walls, a lower compartment, an upper display compartment, a blower housing mounted in said lower compartment, a refrigerating coil and a fan in said blower housing, said upper display compartment having side panels spaced from said insulated side walls to provide air passageways therebeteween. . . .

2,826,045. FREEZING APPARATUS. Noland Poffenberger, Midland, Mich., assignor to The Dow Chemical Co., Midland, Mich.



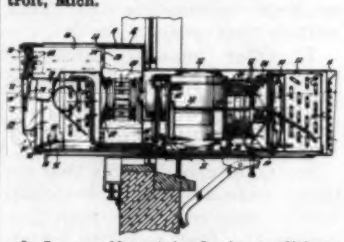
1. Apparatus for freezing an organic material, said freezing apparatus comprising at least one inclined freezing plate having a freezing channel including an intake end and a discharge end, said channel having a substantially planar bottom and having sides extending upwardly from two opposite edges thereof. . . .

2,826,047. DEFROSTER-HEATER AND BAFFLE INSTALLATION FOR REFRIGERATOR. William R. Mittendorf, Cincinnati, Ohio, assignor to Avco Mfg. Corp., Cincinnati, Ohio.



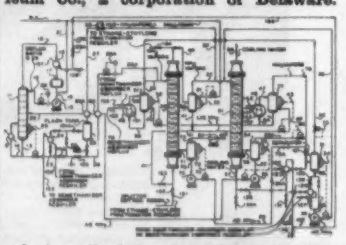
1. In combination, a refrigerator cabinet, an evaporator within said cabinet, a serpentine defroster-heater secured to and beneath said evaporator, said heater comprising a main section lying in a plane and secured to said evaporator, at least two parallel heater portions forming a contact section spaced below said main section. . . .

2,826,048. REFRIGERATING APPARATUS FOR COOLING ROOM AIR. Harold A. Wheeler, Dayton, Ohio, assignor to General Motors Corp., Detroit, Mich.



2. In a self-contained air conditioning unit, a cabinet, refrigerating apparatus disposed within said cabinet, said refrigerating apparatus comprising an evaporator, a condenser, a sealed motor-compressor unit, and refrigerant flow connections between said evaporator, compressor and condenser, evaporator fan means for circulating air to be conditioned in thermal exchange relationship with said evaporator. . . .

2,826,049. IMPROVED LOW TEMPERATURE ABSORPTION REFRIGERATION. Forrest E. Gilmore, Bartlesville, Okla., assignor to Phillips Petroleum Co., a corporation of Delaware.



1. A method for providing refrigeration which comprises flashing liquid ammonia in successively lower pressure flashing steps to cool the unvaporized ammonia to desired refrigeration temperatures, absorbing the flashed ammonia in aqueous ammonia of progressively increased concentrations of ammonia in progressively higher temperature and pressure absorption steps. . . .

(To Be Continued)

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SENIOR PROJECT or chief engineer—An aggressive self-starter, full of initiative & enthusiasm for broader engineering or manufacturing responsibilities. Seventeen years' experience handling engineering & manufacturing problems. 5 years of which have been design & product engineering of refrigeration & air conditioning systems, especially heat pumps. BOX A6008, Air Conditioning & Refrigeration News.

HAVE GUTS—Will travel! Sales engineer — mid-thirties, strong background appliances and components. Ideal man with proven achievement record, excellent references. Currently employed $12,000, range by industrial giant. Seek opportunity to grow with smaller company. Will relocate anywhere in world or elsewhere. BOX A6030, Air Conditioning & Refrigeration News.

SALES MANAGER — Engineering and manufacturing background. Eighteen years in the industry. Know commercial refrigeration and air conditioning products and people. Presently handling "million dollar accounts." Company must have R & D program planned or in progress. Excellent health, late thirties, presently employed. BOX A6034, Air Conditioning & Refrigeration News.

MANUFACTURER'S AGENCY calling on restaurant equipment, commercial refrigeration firms, heating and air conditioning distributors in Michigan, Ohio, Indiana, Kentucky, West Virginia and western Pennsylvania seeks additional lines. In addition to thorough coverage we offer heating, air conditioning and refrigeration engineering knowledge and experience. BOX A6035, Air Conditioning & Refrigeration News.

HAVE EXPERIENCE — Will travel. Seeking position with firm who feels older man's knowledge all phases refrigeration can be of real help to them. Prefer south but will accept right offer anywhere. 56, good health, 31 years' field service, test & inspection, low temp. and household design. BOX A6036, Air Conditioning & Refrigeration News.

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OPPORTUNITY FOR manufacturer's representative: To increase your earnings, sell a full line of freezers, beverage coolers, display cases, dual temperature reachins and walkins. We manufacture a quality line to meet competition. Agents wanted for new territories. Write HOWARD REFRIGERATOR CO., INC., 4745 Worth Street, Philadelphia 24, Pa.

WANTED — DISTRICT Manager. For New York and Pennsylvania area by manufacturer of super market line of refrigerated display equipment. Must have previous experience in order to qualify. Excellent opportunity for the right man. Replies kept strictly confidential. Send complete information in initial letter to BOX A6027, Air Conditioning & Refrigeration News.

CREATIVE TECHNICAL Writer — Major manufacturer requires one or possibly two experienced and talented writers for newly-organized technical publication department. Prior experience must include planning, preparation and production of all types of buying data, such as product sales specs, descriptive and application information, sales training materials, installation and service instructions for both unitary and applied equipment. Practical knowledge of the business is also essential to assist in field training, surveys, and other forms of customer contact. Submit complete resume to BOX A6031, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE engineer, for installing and servicing commercial and industrial refrigeration and air-conditioning. Must have at least six years' experience. This is a year round job, for the right man. Located in Michigan. All inquiries confidential. Please send resume showing experience, personal data and earnings expected. Write BOX A6032, Air Conditioning & Refrigeration News.

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CASH WAITING for quantity of air conditioning units. Write P. O. BOX 4901, Miami, Florida.

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Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Ford auto air conditioner is the twenty-first make to be discussed in this series. Makes previously described were A.R.A., Artic-Kar, Frigette, Frigikar, Kauffman, Mark IV, Airtemp, Mobilette, Novi, Vornado, Polar-Temp, American Motors, Buick, Cadillac, Chevrolet, Chrysler, DeSoto, Dodge, Plymouth, and Edsel.

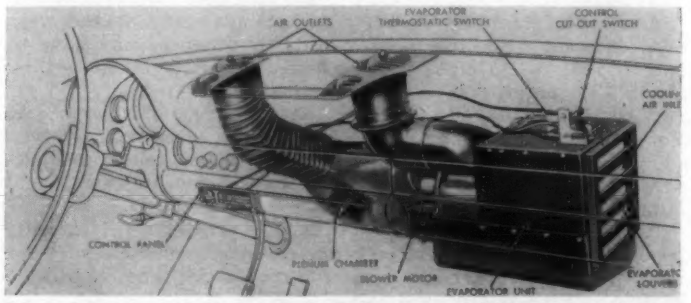

FIG. 1—Evaporator assembly and air distribution system of 1956 Ford air conditioner.

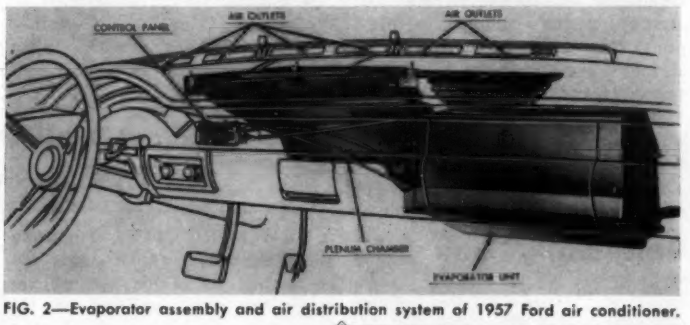

FIG. 2—Evaporator assembly and air distribution system of 1957 Ford air conditioner.

Ford (1)

Ford Div.
Ford Motor Co.
Dearborn, Mich.

The "SelectAire" conditioner offered by Ford as an optional accessory on its 1956 and 1957 cars equipped with V-8 engines is a front-end type system.

Evaporator assembly (Figs. 1 and 2) mounts under the dash in the passenger compartment on the right side of the cowl. Compressor, which is driven through a magnetic clutch, is located on the right cylinder block in the engine compartment. Condenser is in front of the car radiator.

The combination heating and cooling control panel mounts on the car instrument panel.

System employed by Ford in 1956 is essentially the same as was used in 1955. Temperature control is achieved by mixing recirculated air and outside air. A solenoid by-pass valve controlled by a thermostat which responds to evaporator air temperature by-passes refrigerant around the evaporator when required to prevent icing.

On the 1957 Ford system, however, temperature is achieved by a thermostat which cycles the magnetic clutch and thus compressor operation. No by-pass arrangement is used.

Refrigerant-12 is employed in Ford air conditioners. Charge is 4½ lbs. in 1956 units, 3½ lbs. in 1957 systems.

Compressor

A two-cylinder reciprocating compressor is used on 1956-57 Ford units. It is mounted on the right cylinder block and is belt-driven off the car engine through a magnetic clutch.

Correct oil level on the 1956 compressor is 2 to 2¼ in. as measured on a dipstick. Oil level of the 1957 compressor should be ¾ in.

An oil separator is provided in 1956 Ford systems. This is installed in the suction line at the suction service valve. Oil return line from the separator is connected into the oil filler plug of the compressor.

An oil separator is built in the compressor on 1957 systems.

Discharge service valve on both 1956 and 1957 systems is mounted on top of the condenser in front of the car radiator.

Suction service valve on the 1956 Ford conditioner is mounted on top of the radiator right air deflector. On 1957 Ford systems the suction service valve is mounted on the right side of the compressor.

Condenser

The condenser is mounted in front of the car radiator. In both 1956 and 1957 systems the discharge service valve is mounted on top of the condenser at the right (curb) side.

A combination receiver and drier unit is provided at the condenser.

On 1956 models the receiver is located to the right of the condenser. A check valve is provided in the line between the condenser outlet and the receiver inlet. Its purpose is to prevent reverse surges of liquid refrigerant from the receiver back to the condenser due to operation of the by-pass valve. It also maintains high pressure at the expansion valve when the by-pass valve opens.

Part way down from the top of the condenser on 1956 models is the by-pass line connection.

Sight glass on 1956 models is located on the right front fender apron.

On 1957 models the combination receiver and drier is mounted on the right side of the condenser. Sight glass is at the receiver outlet. No check valve or by-pass outlet is provided in the 1957 condenser assembly.

(To Be Continued)

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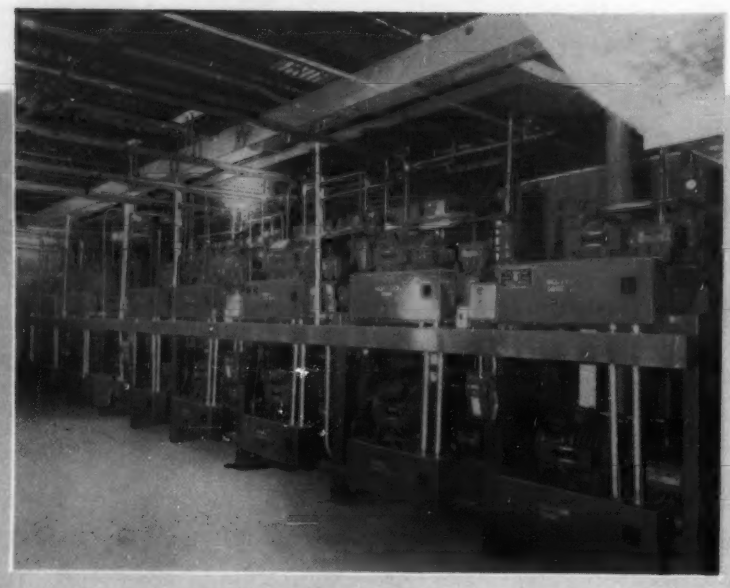

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